THE BRICKBVILDER

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THE BRICKBUILDER.

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ADVERTISING.

Advertisers are classified and arranged in the following order:—

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Advertisements will be printed on cover pages only.

TESTED FIREPROOF MATERIAL.

ARCHITECTS are as a class conservative. This is quite as it should be. The temptation to experiment at some one's else expense is always within the reach of the architect. But in most cases it is not a temptation which appeals to one very strongly, and it is one which surely, in the interests of the client as well as the architect's own reputation, should be sedulously avoided. There are in this country to-day before the public a surprising number of so-called systems of fireproofing. We venture the broad statement that there is only one which has stood all manner of tests and been successful through them all and that is that which is based upon the use of hollow terra-cotta blocks as a protection against the action of heat. We do not feel, however, that fireproofing need be treated like burnt pig, in Charles Lamb's famous essay. It is not necessary to burn the building down or even set it on fire in order to determine whether or not the system of fireproofing employed is a safe one, but more insistence can with advantage be placed upon the necessity of actual tests even on a small scale. Nor is it enough that such tests should receive the approval of a building department or of the engineer employed by the company, or of a few interested investigators. The great pity is that we have no authoritative board or body in this country to make such tests in an absolutely impartial manner, publishing fearlessly the results and showing no favors. But in the absence of such disinterested tests we feel it can be stated as a general rule that no material will resist fire unless in the process of its manufacture it has already passed through a temperature as high as any to which it might be exposed in a burning building, nor is any material to be considered as ranking among the best unless it is of such nature that the action of heat under 2,500 degrees will not change its molecular or chemical constitution. Nor is any material suitable which is in any way affected by the action of water. There is only one material, at present, before the public which will answer all three conditions and that is burnt clay, and we feel that architects are quite justified in being sceptical in regard to any system of fireproofing which uses any other material as a base. The fact that other systems may pass muster from inspectors or may stand most fires or may be almost as good as terra-cotta is a poor argument. The best is none too good, especially when the best generally costs but little, if any, more than those compositions which will stand most fires. Too great insistence cannot be placed upon the selection of material and upon the system of construction which is absolutely the best.

THE daily press has found a great deal to say of late anent the opening of a private museum in Boston, which is in some respects a most interesting sign of our national progress in art matters. There are rich men and women by the hundred who have accumulated works of art which are carefully hoarded in private collections to which the public has no access, but as far as we know Mrs. John L. Gardner is the first to appreciate that she is but a trustee and that her unquestioned taste and her ample bank account can best be used to place objects of fine art within the reach of educated, cultivated people. Her museum is unique in many ways. Every object it contains was selected because of its artistic worth. There is no padding, no gifts which cannot be questioned, and there is plenty of room for pictures and for art subjects so that they can be studied one by one without crowding and without haste. Two hundred people only are allowed to enter on certain days of the week by special admission tickets which must be purchased at one dollar each. We know of no place where conditions might be so ideal for studying and appreciating art, and it is to be hoped that examples of this kind, which are by no means uncommon

abroad, may be imitated by men like Senator Clark, J. M. Hill or the Vanderbilts, whose priceless collections now are for the greater part hidden away from those to whom they would do the most good.

R. M. UPJOHN.

BY the death of R. M. Upjohn the architectural profession loses one of its oldest and most honored members. For more than half a century the Upjohns, father and son, have been prominent architects in New York, and they have been identified with every development of the profession. Mr. Upjohn was the first president of the American Institute of Architects, and up to the time of his death took an active interest in all professional matters. He was born in England in 1828, and came to this country while a mere child. The best known of his buildings is the State House at Hartford, which in many ways is one of the most successful structures of its kind in the country and offers one of the very few examples in the world of a Gothic dome.

FRANCIS CRANMER PENROSE.

SINCE our last issue we have to chronicle the death of Mr. Francis Cranmer Penrose. From 1852 to 1897 Mr. Penrose held the position of surveyor to St. Paul's Cathedral, London, having succeeded Professor Cockerell, and during that time, in addition to his care of the cathedral and a moderate architectural practice, he wrote a number of highly esteemed treatises on the refinements of Greek architecture and kindred topics. He received the Royal gold medal of the Institute of British Architects, and was a past president of that institution. His literary work was not confined entirely to architecture, as he found time to publish a work on "A Method of Predicting Occultations of Stars and Solar Eclipses by Graphical Construction," of which a new edition was issued last year, as well as a paper on certain astronomical facts connected with the orientation of Greek temples.

NEW BOOKS.

THE DESIGN OF SIMPLE ROOF-TRUSSES IN WOOD AND STEEL. By Malverd A. Howe, C. E. New York: John Wiley & Sons. Price, $2.

The stated object of the writer of this book has been to bring together in a small compass all of the essentials required in properly designing ordinary roof-trusses in wood and steel. The programme so laid out has been faithfully adhered to. There is hardly a line of superfluous matter in the book, the essentials are clearly and compactly stated, the theory of graphical statics is presented in a precise and comprehensive manner, and to give the work a practical value the author selected one typical truss in wood and a similar typical truss in steel and worked out in fullest detail all the strains and all the sizes and detail connections. For work of this kind a single truss so worked out is far better than an extended variety, for the engineer or architect who can master the processes of calculation involved in a single truss as herein shown would have no difficulty in applying the same principles to any structure however complicated. The book has been carefully edited and is quite free from slips or inaccuracies. Our only criticism would be that the tables, which occupy some thirty pages, are quite superfluous, as they are essentially nothing but transcripts from the steel handbooks. They, at least, however, do no further harm than to add to the bulk of the book.

A DISCUSSION OF COMPOSITION, Especially as Applied to Architecture. By John Vredenburgh Van Pelt. New York: The Macmillan Company.

This book is interesting reading. It is throughout evidently inspired by nothing more American than the acquired principles of the Ecole des Beaux Arts, and its practical applicability to American wants is questionable, but its abstract statements are such as are common to all manifestations of art, and they are well put and worthy of serious study. The value of the book ceases where the author gets beyond general statements, and especially in the so-called practical hints toward the close he is hopelessly at sea. Still the successful practitioner will doubtless derive an intellectual pleasure in being told exactly why he has done certain things which led to success, while with the beginner the impracticability of the impractical chapters will pass over his head without notice, and the really excellent discussions on the theory of art cannot fail to do him a great deal of good. For the best that is in it the work is strongly to be commended; the balance had far better have been omitted entirely.

THE AMERICAN VIGNOLA. PART I. THE FIVE ORDERS. By William R. Ware, Professor of Architecture in Columbia University. Boston: The American Architect and Building News Company.

It seems like a bit of ancient history for Professor Ware in the preface to refer to January, 1859, when he left Mr. Edward Cabot's office in Boston to study architecture under Mr. Richard Hunt. Since that time the country has passed through several varying phases of architectural manifestation, but the principles of the Orders and their use are not essentially different from what they were in the early days of this century when our excellent colonial work was produced. Professor Ware's book is admirably illustrated and gives in very complete detail all that can be said on the subject. The work is to be commended for its thorough, scholarly qualities.

A MANUAL OF DRAWING. By C. E. Coolidge, Assistant Professor of Machine Design, Sibley College, Cornell University. 8vo. 92 pages, 10 full-page plates. Paper, $1. New York: John Wiley & Sons.

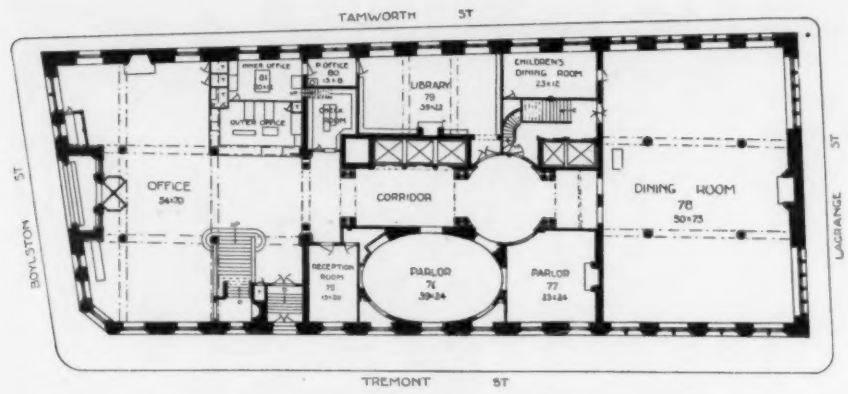
This book contains about all that can be said on the subject of drawing materials and how to use them. It also takes up in a general way the usual practice of draughting offices in regard to the preparation and manufacture of drawings. It is written especially for the use of machinists, but it is well worth the study of architectural draughtsmen as well, though the writer evidently has a fondness for mechanical work when he speaks of a soft pencil being HHH or HHHH, when the usual custom among architects is to consider HB rather hard. The drawings accompanying the work are unfortunately not as good as the text matter, but the chief trouble is in their reproduction rather than in the subject-matter.

The American Hotel. II.

BY C. H. BLACKALL.

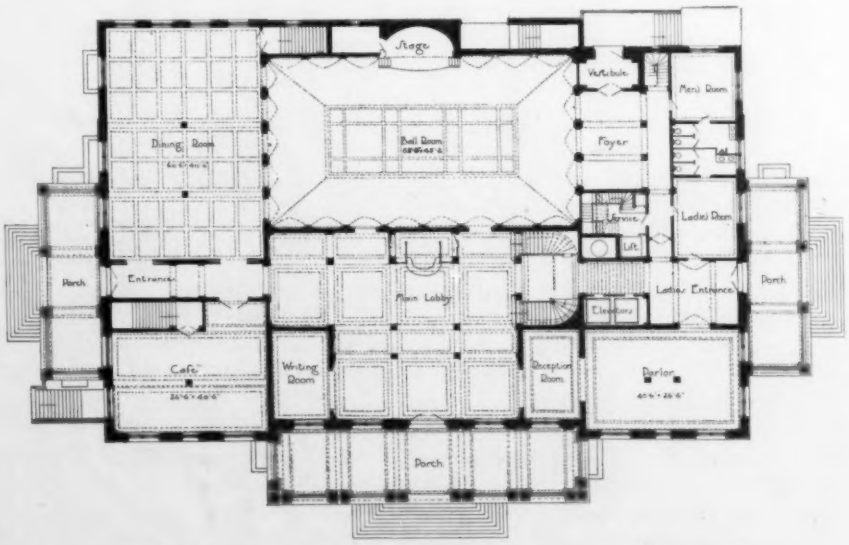
THE MAIN FLOOR.

THE keynote of the arrangement of the principal floor of a modern first-class hotel is ample circulation and publicity. Everything is subserved to affording opportunity for the guests to see each other and themselves, and to have abundant space in which to promenade, to show themselves and to observe. It is assumed to be an attribute of well bred nonchalance to appear oblivious to everything that goes on around one, but as a matter of fact there is no other place where individual curiosity is so tolerated, and so openly encouraged as in a modern hotel. Consequently a great deal of space is given up to mere circulation and lounging rooms. The main apartment, if it may be so called, is at once hall, rotunda, office, news room and reception room. The dining room must be close at hand, and, if possible, separated from the strictly so-called public space by either draped openings or large windows. The corridors are made of ample proportions, and as far as possible each corridor leads to some notable feature so as to tempt the visitor to investigate. Everything is for show and to carry out the appearance of well bred interested leisure, which is so prominent in our city hotels. There are a few features which are common to all and which are essential. The main entrance is directly into the lobby. Most of our modern hotels are now equipped with the Van Kannel revolving doors, which obviate the necessity for any vestibules and at the same time increase the possibility of abundance of light for the large rooms which are necessitated by the program. Everybody can enter from the main entrance, but it is a feature of hotel etiquette that a lady shall enter by a separate entrance, if possible on one side, and that close by the ladies' entrance there shall be a small waiting room, called, by courtesy, the ladies' parlor, which is usually a convenient resting place on the way either to the elevators, which ought to be close at hand, or to the dining room, which should never be far distant. The floor plan of the New Willard, at Washington, shows these points admirably. The main lobby is a magnificent apartment finished in elaborate manner, with a high ceiling, and grouped either in it or about it are all of the working functions of the hotel life. The ladies' room is on the corner of the two streets with an entrance from Fourteenth Street, and the disposition of the elevators and the approach to the dining room in relation to the ladies' room and the ladies' entrance illustrate a very clever bit of planning on an irregular corner.



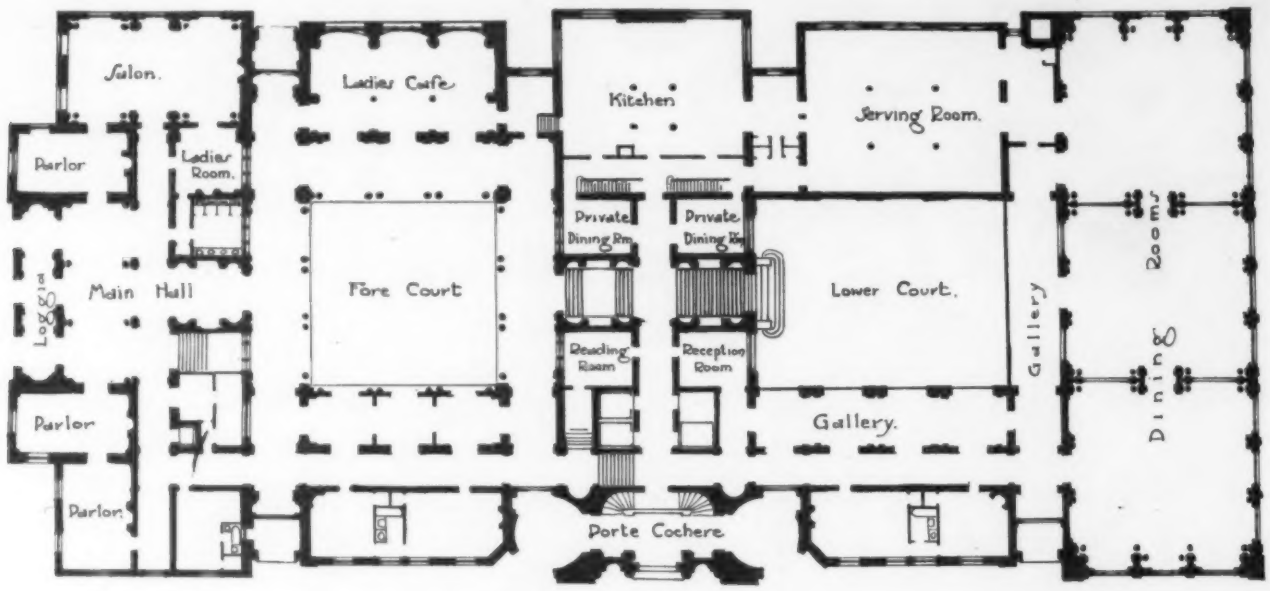
PLAN OF OFFICE FLOOR, HOTEL TOURAINE, BOSTON.
Winslow & Wetherell, Architects.

The Touraine offers a similar solution. The main entrance is from Boylston Street directly into a large apartment designated on the plan as office, which accommodates a number of various features, and directly opposite, on the axis, passing the side entrance, is the ample corridor leading directly by the elevators to the large dining room. In the case of the Manhattan, the ladies' entrance is into a sort of enlarged vestibule which answers the purpose also of ladies' room, and the main rotunda is the general waiting room, which is entered directly from the street through revolving doors which are not shown on the plan. The general scheme seems to be to oblige patrons to enter the hotel and come in a measure at least under the eye of the management before reaching the dining room. Only rarely can the dining room be entered without first passing close by the main desk. In the Auditorium Annex the restaurant is on the corner and immediately adjoining the main vestibule, so that outsiders need not pass into the main lobby. The same is true of the café in this hotel, which varies from the usual type in being on the ground floor. The local condition in Chicago apparently did not favor a basement



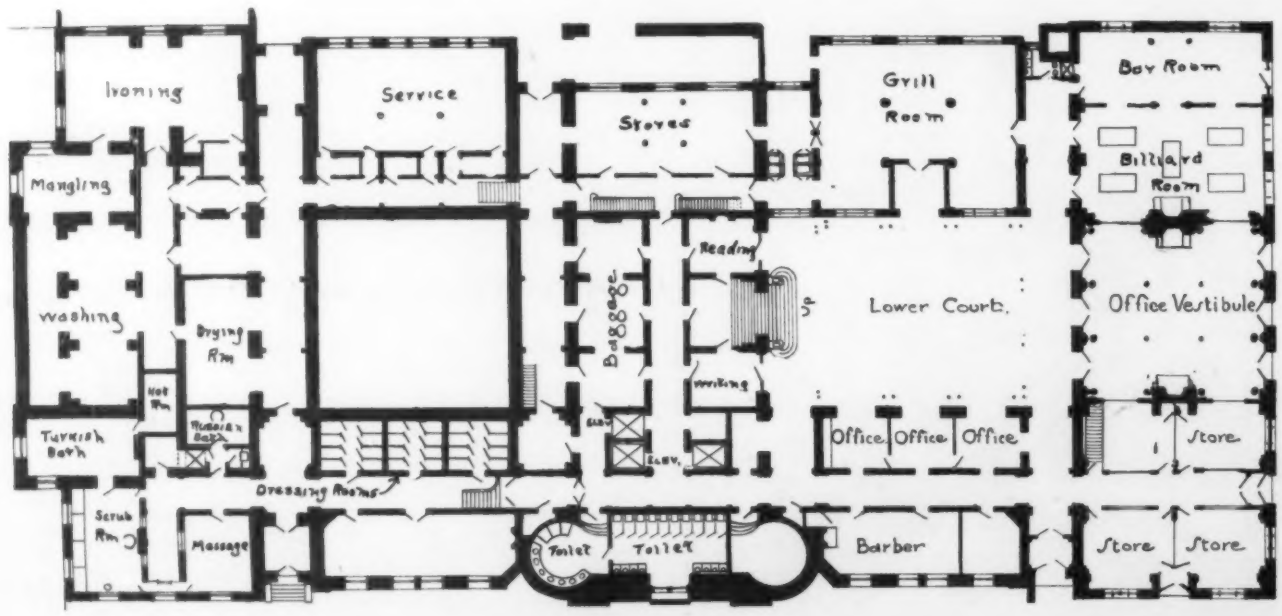
PLAN OF OFFICE FLOOR, HOTEL SCHENLEY, PITTSBURG, PA.
Rutan & Russell, Architects.

café. On a somewhat smaller scale the Hotel Schenley carries out the same principles in a very straightforward, logical manner. The lobby is the central feature and directly opposite the main entrance is the desk. The carriage entrance is at one side, with a passage and a parlor or ladies' room on opposite sides of this passage and an elevator just beyond, so that upon entering the hotel ladies can remain in the waiting room while the gentlemen register and the party can then take the elevator to the upper stories without the ladies being obliged to pass through the lobby at all. It seems to be unwritten custom that ladies shall keep out of the lobby. Smoking is generally permitted there, and ladies are supposed to only cross the lobby but not to linger therein. In the Waldorf-Astoria, however, the conditions are somewhat different. The main office is entered from Thirty-fourth Street. On this side of the building is also a driveway into the building, enclosed by a promenade, this promenade in turn being separated by a glazed partition from the apartments marked on plan as the main foyer, the main corridor, and the reception room, the office being just beyond the corridor on the right. As a matter of fact all of these apartments are thronged night and day with guests in constant circulation. This



SKETCH FROM ARCHITECTS' PLANS.

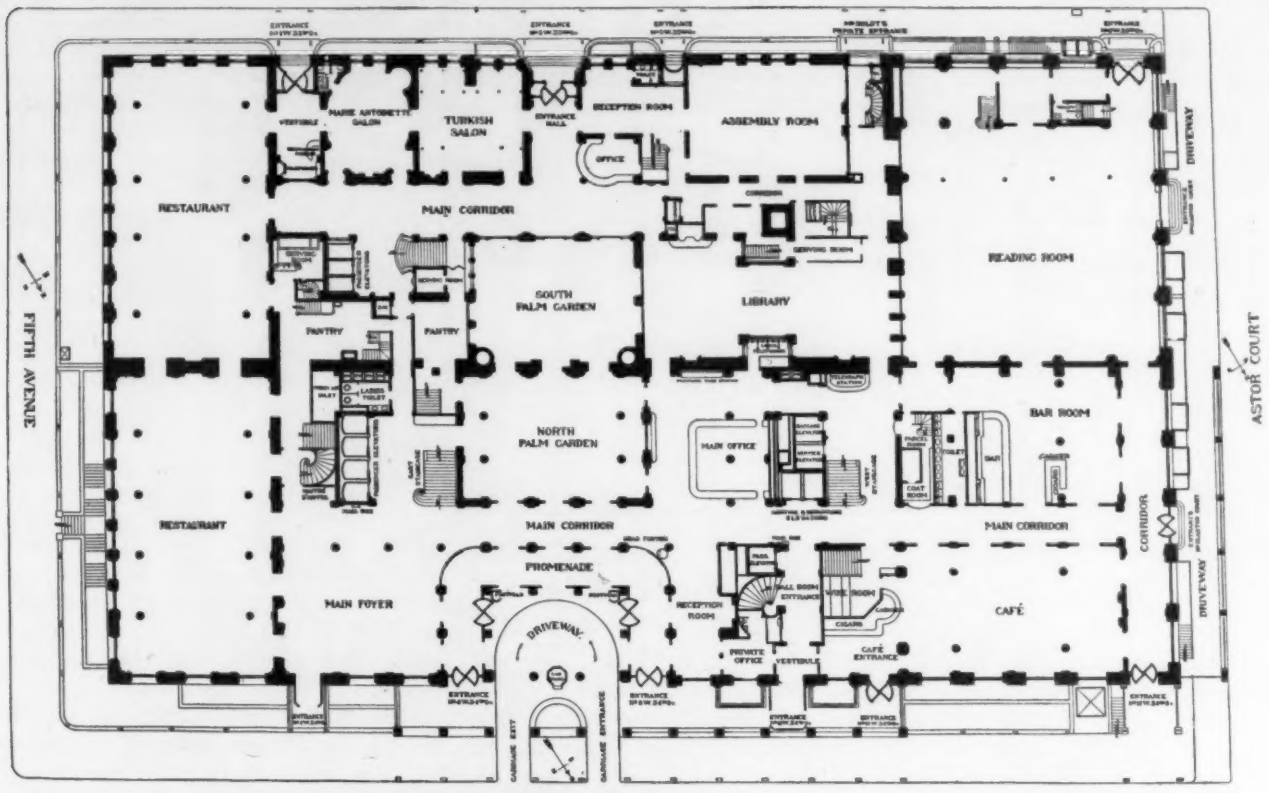
PLAN OF PARLOR FLOOR, HOTEL JEFFERSON, RICHMOND, VA.
Carrère & Hastings, Architects.



SKETCH FROM ARCHITECTS' PLANS

PLAN OF OFFICE FLOOR, JEFFERSON HOTEL, RICHMOND, VA.
Carrère & Hastings, Architects.

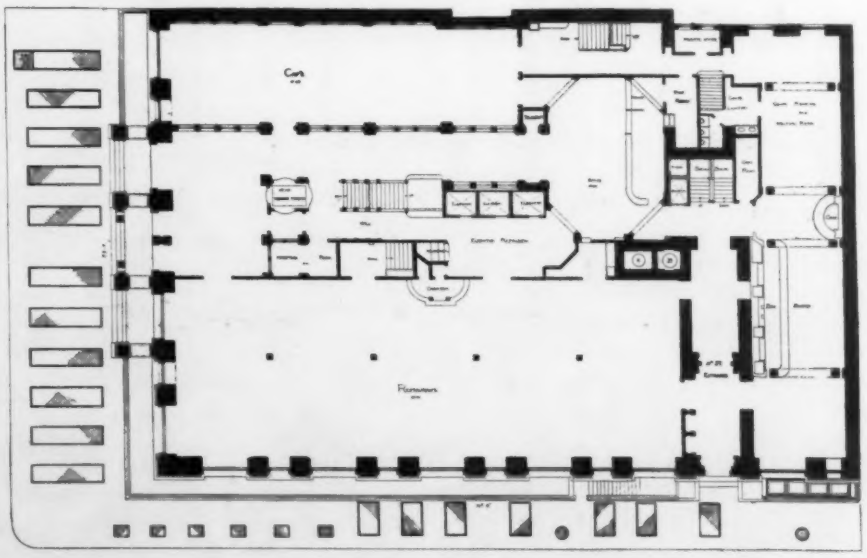
hotel having been built in two sections presents some duplication of parts which would not be expected in a structure designed as a unit, but the idea of affording ample room for circulation is manifest everywhere and can easily be traced out on the plan.



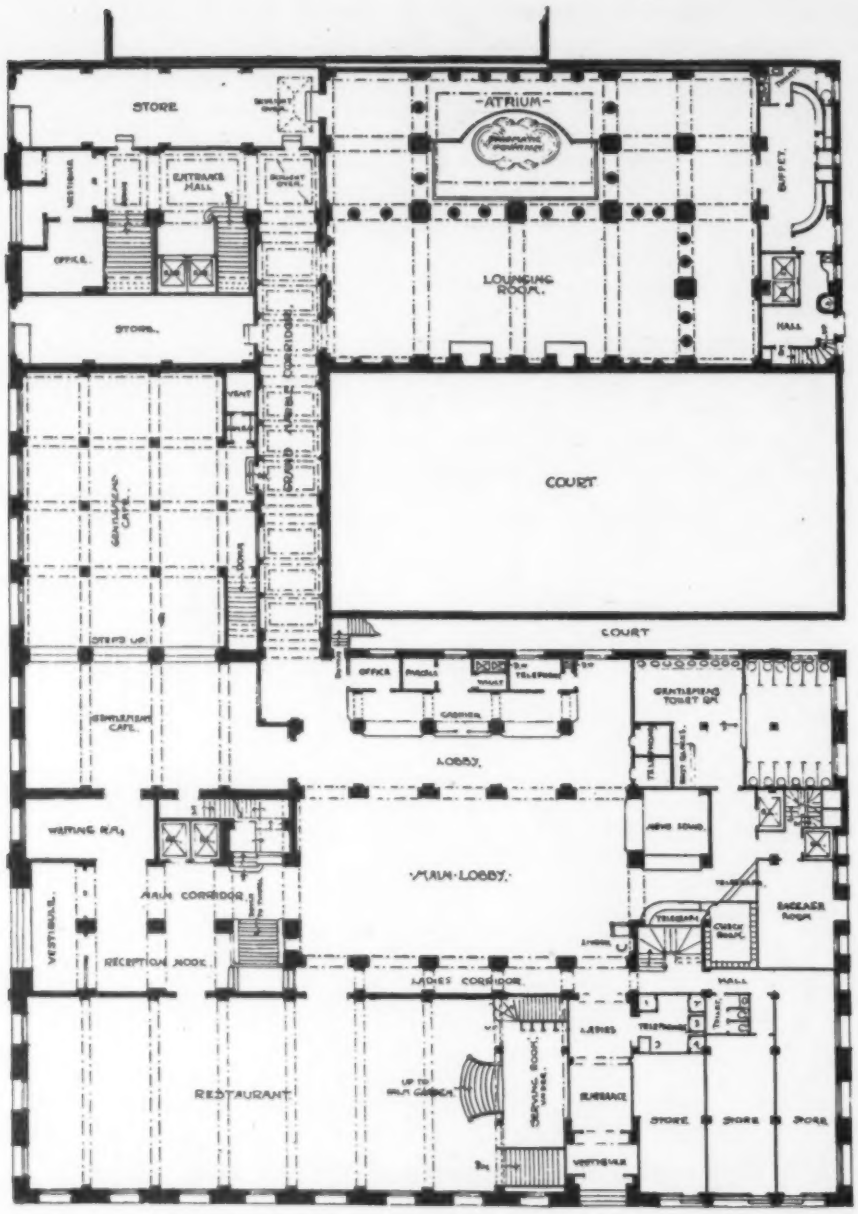
PLAN OF OFFICE FLOOR, WALDORF-ASTORIA HOTEL, NEW YORK CITY.
H. J. Hardenbergh, Architect.

In the New Planters Hotel, St. Louis, there is a departure from the usual arrangement, in that the main dining room, the reception room and the kitchen are on the second floor, the main entrance, the café, barroom, barber shop, etc., being on the ground floor, and the office placed on the axis of the entrance. The ladies' entrance is from Pine Street. This plan has a further complication in that a part of the ground floor is given up to stores. Generally the requirements of hotel accommodation are such that every inch of room on the ground floor can be used by the lessee, and stores are impracticable.

All the plans previously referred to are of hotels upon a level site. The Hotel Jefferson, at Richmond, is an exceedingly interesting illustration of what can be done on a site which pitches very sharply towards the rear. The difficulties were overcome by Carrère & Hastings in a most logical manner, and the hotel as it is shown by the plans is one of the most interesting structures of its class in the country. Nominally the main entrance is on the upper level, or at the left of the plans as shown by the cut. A shallow vestibule gives access to a moderate sized lobby, on each side of which are parlors. On the axis a short vestibule leads to a charming open fore court surrounded



PLAN OF OFFICE FLOOR, HOLLAND HOUSE, NEW YORK CITY.
Harding & Gooch, Architects.



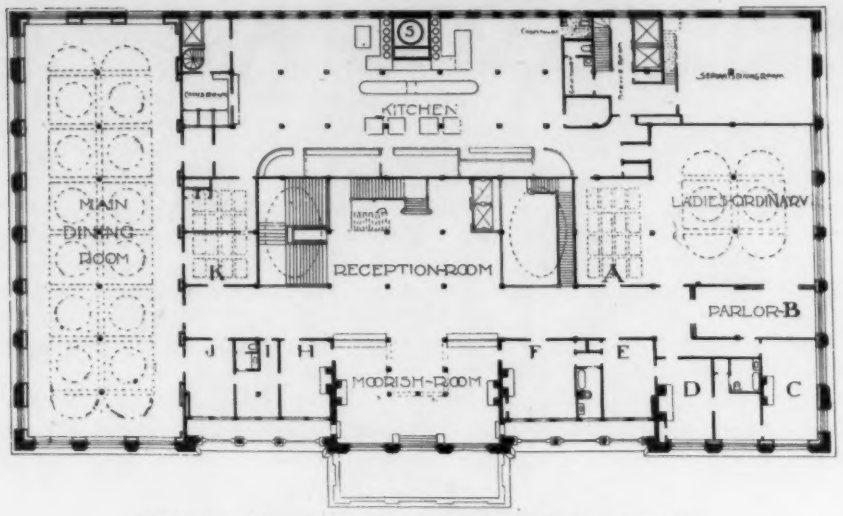
PLAN OF OFFICE FLOOR, AUDITORIUM ANNEX, CHICAGO.
Holabird & Roche and Clinton J. Warren, Associate Architects.

at a level ten steps below to give access to the dining room that faces the rear street and to the galleries opening into the upper portion of the lower court. This court on the lower level is actually the main entrance to the hotel, the omnibuses and carriages driving up the rear street. The clerk's desk, the grille room, the lavatories, etc., are all on the lower level and a side corridor carries one directly to the elevators. The effect on entering the hotel and looking up from the lower court along the axial stairway into the fore court with its mass of green foliage is extremely interesting and it would be hard to imagine a more successful treatment of so difficult a problem.

It is apparently not considered essential that the office or the main lobby or waiting rooms of a hotel shall be abundantly lighted from out of doors. In the Waldorf-Astoria all the interior rooms, including the office, are lighted continuously by electric light, and even in the dining rooms and cafés, which front on the street, the electric lights are burning a greater portion of the time. In the Manhattan the portion designated as rotunda receives excellent light from the street, but even here electric lights are burnt a great deal and in the office they are going continually. It adds to the appearance of the lobby and office surroundings if daylight can be introduced even in limited quantities, but it is seldom practicable to so arrange the first floor as to dispense entirely with artificial light, and it apparently is not an imperative need to do so.

by a colonnade and flanked on one side by parlors and on the other by a ladies' café. This fore court is, or was, beautifully planted with palms and flowering shrubs, with a statue of Thomas Jefferson and a fountain in the center. On the opposite side of the hill, still on the axis, is a flight of stairs leading down to a second courtyard at the lower level, this second courtyard extending through the height of the lower and the main story, and being covered with glass. From the fore court a transverse corridor leads to a corridor parallel to the side street, carried along partly on the upper level and partly

PLAN OF OFFICE FLOOR, NIAGARA HOTEL, NIAGARA FALLS, N. Y.
Green & Wicks, Architects.



SECOND FLOOR PLAN, THE PLANTERS HOTEL, ST. LOUIS.
Isaac S. Taylor, Architect.

The location of the desk must be very carefully studied. The clerks are supposed to keep an eye on every one who enters and leaves the hotel, and the registry book should, if possible, be visible at a glance to guests entering the front door. In the New Planters, the Schenley and the Holland House the desk is directly opposite the main door. It is more commonly, however, on one side as in the Touraine, the Auditorium Annex, the New Willard or the Jefferson. In the Manhattan it is some distance back beyond the rotunda lobby and almost around the corner, while in the Waldorf-Astoria it is decidedly to one side of the axis and of the main entrance, though the disposition of rooms is such that it is very prominent. The office includes a main counter where the guests are received and registered and rooms assigned them. Usually there is a distinct portion set aside for the reception of the keys, letters, etc., and the cashier's desk is usually an extension of the main counter. In the Waldorf-Astoria there is a considerable space devoted simply to information, opposite which, against the wall, is the station for the despatch tubes leading to each story. Beyond the mere fact that the main desk or office shall be in full view of the main entrance, there seems to be really nothing that governs its position.

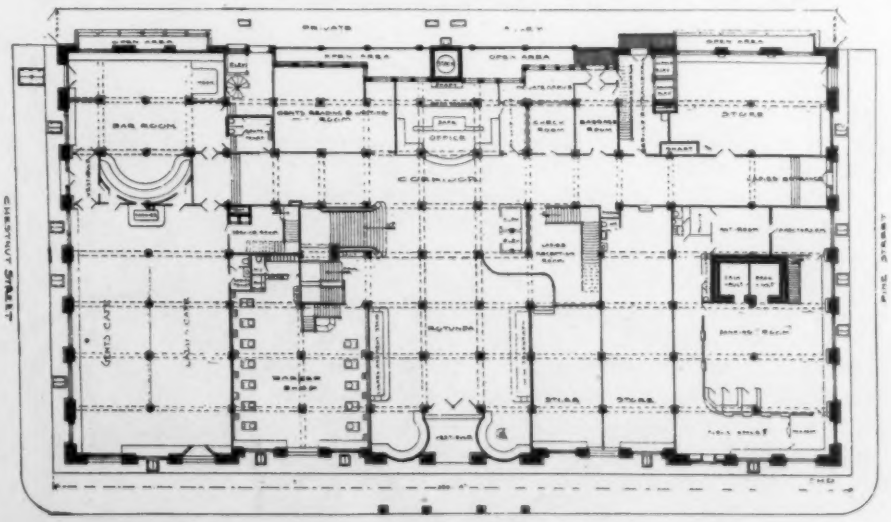
The arrangement of the various features which have to be accommodated on the ground floor calls for the exercise of a good deal of ingenuity. They must all be like the servant in the famous portrait, who was in the picture, but just out of sight around the corner. There must be space for a telephone operator's desk with at least two telephone booths immediately adjoining. The Manhattan has six telephone booths, and they are in constant demand. The New Willard has four telephone booths. In both of these hotels this portion of the service was carefully thought out and very conveniently arranged, so as to be readily accessible without detracting from the general arrangement, but it is usually the case that all the telephone facilities are neglected until the building is finished, and they do not always receive the attention they merit.

The coat or check room is another feature which receives far less attention than it should. A coat room is never too big, but it is often too small. It should be on the ground floor immediately opposite the main desk, and in a rough general way the number of square feet should approximately equal the number of rooms in a hotel. This of course is the crudest kind of approximation, but it appears to fit some of the more convenient coat rooms. Immediately adjacent to this and as close as practicable to the service elevators it is well to have a trunk room. Only a very few hotels, however, are so placed as to make it practicable to have a separate entrance through which baggage can be brought. When there is a separate entrance of course the baggage room should be immediately adjoining the same, but few city hotels can afford such a luxury.

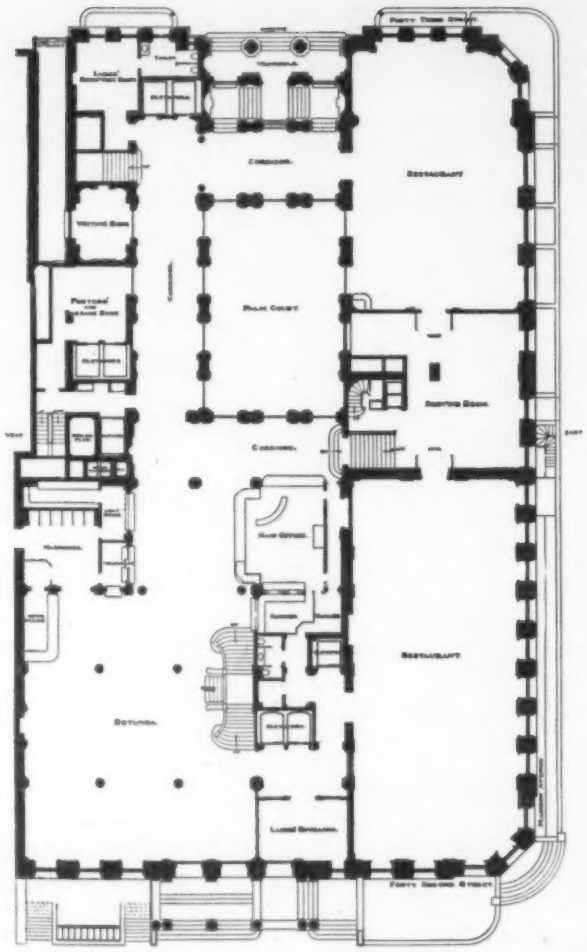
Space must also be provided for a telegraph office. If the hotel includes a ticker in its equipment this apparatus is usually placed in the café or in the barroom.

The news stand is usually very prominently placed in the main lobby. It is seldom specially arranged for and more often consists simply of a counter built out into the room from one wall. For an ordinary hotel a space 10 x 14 would be ample. The theater ticket office is usually run is connection with the news stand and needs no special provision.

In some hotels, as in the New Willard and in the Waldorf-Astoria, the head porter has a desk, and to him is assigned the calling of carriages, engaging of railroad ac-



PLAN OF OFFICE FLOOR, THE PLANTERS HOTEL, ST. LOUIS.
Isaac S. Taylor, Architect.



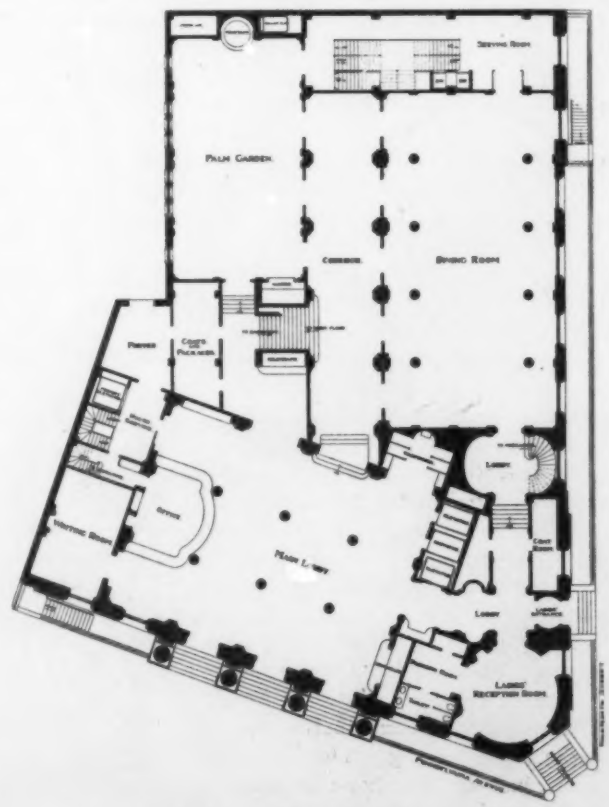
PLAN OF OFFICE FLOOR, HOTEL MANHATTAN,
NEW YORK CITY.
H. J. Hardenbergh, Architect.

commodations, the delivery of letter paper and envelopes and stamps, and what is termed paging a guest, that is to say, sending a boy around through all the rooms to call out the name of some one who is wanted.

There should be a small ladies' waiting room reached by a separate entrance from out of doors, opposite the elevators if possible, and close by the main desk. This is used only slightly and for a very few moments at a time, and a very small apartment answers the purpose. Besides this there should be a ladies' parlor, a writing room and a library. These are purely show rooms. They are used so little that it is impossible to settle any data as to sizes, and their location depends entirely upon what is left in the lot after the main offices and dining rooms are set off.

It is usual in hotels of the present day to place the café and the barroom in the basement and reserve the restaurant on the ground floor for ladies alone or with escorts. The dining room in the majority of cases occupies the most prominent corner and is disposed so as to get all of the daylight possible. In the Touraine it is arranged very naturally at the rear on the axis, with light on three sides. In the New Willard it receives light only on one side and is disposed rather to the rear of the side street. But in all of the hotels illustrated it is the most commanding room on the floor and architecturally it receives the first consideration. Quite frequently the dining room is helped out by a so-called palm garden, in which the service is supposed to be perhaps a little less formal, though practically there is no difference. When the Waldorf was built the palm garden was placed directly opposite the entrance and formed so charming a feature that upon the erection of the Astoria the same treatment was carried out on the opposite side and the two thrown together. The palm garden in the Niagara is treated a good deal like a large conservatory, and being on the axis of the entrance forms a very charming feature. In the Manhattan the so-called palm court is not a dining room but a species of general waiting and reception room. The palm garden in the New Willard, on the other hand, seems to be used chiefly for theater parties and late suppers. The palm garden in the Auditorium is in a mezzanine story communicating directly with the main restaurant by a broad flight of steps. In the Jefferson the galleries around the lower court on the main dining room level are used as a species of palm garden, the tables being set in the open.

The size of dining room in its relation to the hotel is something governed entirely by local conditions. The number of guests which can be accommodated in a room varies from one for every twelve feet of area, which is rather crowded, to one for every twenty or twenty-five feet in area, which is probably as near an approximation of the average as could be made. There are few first-class hotels which depend entirely upon registered guests for patronage of the dining rooms, and the traffic from



PLAN OF OFFICE FLOOR, NEW WILLARD HOTEL,
WASHINGTON, D. C.
H. J. Hardenbergh, Architect.

outsiders is the largest source of revenue. The most practical rule the writer has heard stated is to plan the lobbies, ladies' room, etc., as restricted as will give satisfaction, and throw all the rest of the room in the first story into the dining room. The approximate ratio between the number of rooms and the area of the dining room is 14 in the Touraine, 8.25 in the Auditorium Annex, 9.8 in the Waldorf-Astoria, 9.75 in the New Willard and 8.35 in the Manhattan.

It may be said that the opportunities for systematic planning, such as is shown in the Jefferson or the Schenley or the Niagara, are extremely few. Any attempt to plan academically, to balance the parts, to preserve or mark axes is generally wrecked by conditions of site, exposure or practical requirements. Apparently hotels which are most architectural in treatment are not necessarily the most popular or the best patronized, and the main essentials seem to be a large, monumental, lavishly decorated lobby entered directly from the street, a magnificent, richly appointed dining room, and especially, as was emphasized at the beginning of this article, ample circulation.

WHY NOT CLAY GUTTERS.

WE rarely see eave gutters made by the clayworker. The ironfounder or the "tin-plate" maker gets practically all the orders for that class of work, but we do not know why it should be. The gutters are not called upon to withstand heavy blows, so that because clay goods might be thought to be too brittle for the purpose does not enter into the question. Suitable joints can be as easily made in the clay goods as in the iron, and we venture to think that they would prove, on the whole, more satisfactory. One of the most frequent causes for complaint in the average modern eave gutter is that, after it has been up some time, it commences to leak. The continual oxidizing action of the air, especially "moist air," tends to corrode and eat away the iron in unprotected places, and the gutter after a while commences to drip at inconvenient points. No action of this kind can be set up where the gutter is of stoneware. Another factor in the case is in regard to æsthetic appearance. It is true that some people may prefer to see the gutters of their houses painted so as to give a "pretty effect." But we venture to believe that very many are not of that opinion, and would much rather that clay goods should be adopted to match materials employed in other parts of the building externally. The owners of house property, too, ought to recognize the value of stoneware gutters over iron ones. The latter, to keep them in order, must be painted, whilst the former require nothing of the kind and will always keep their color. Objection might be taken on the ground of the superior weight of the stoneware gutters, but that weight is little in excess of substantial iron ones, and we are not including jerry-built houses in these observations.

'Tis unlikely that clay gutters will ever be used to any extent on other than buildings which have been built entirely or nearly so of burnt clay. But there can be no logical reason why they should not be used on a building the front of which is either of brick or terra-cotta. — *British Brickbuilder.*

Brick Edifices in Toulouse.

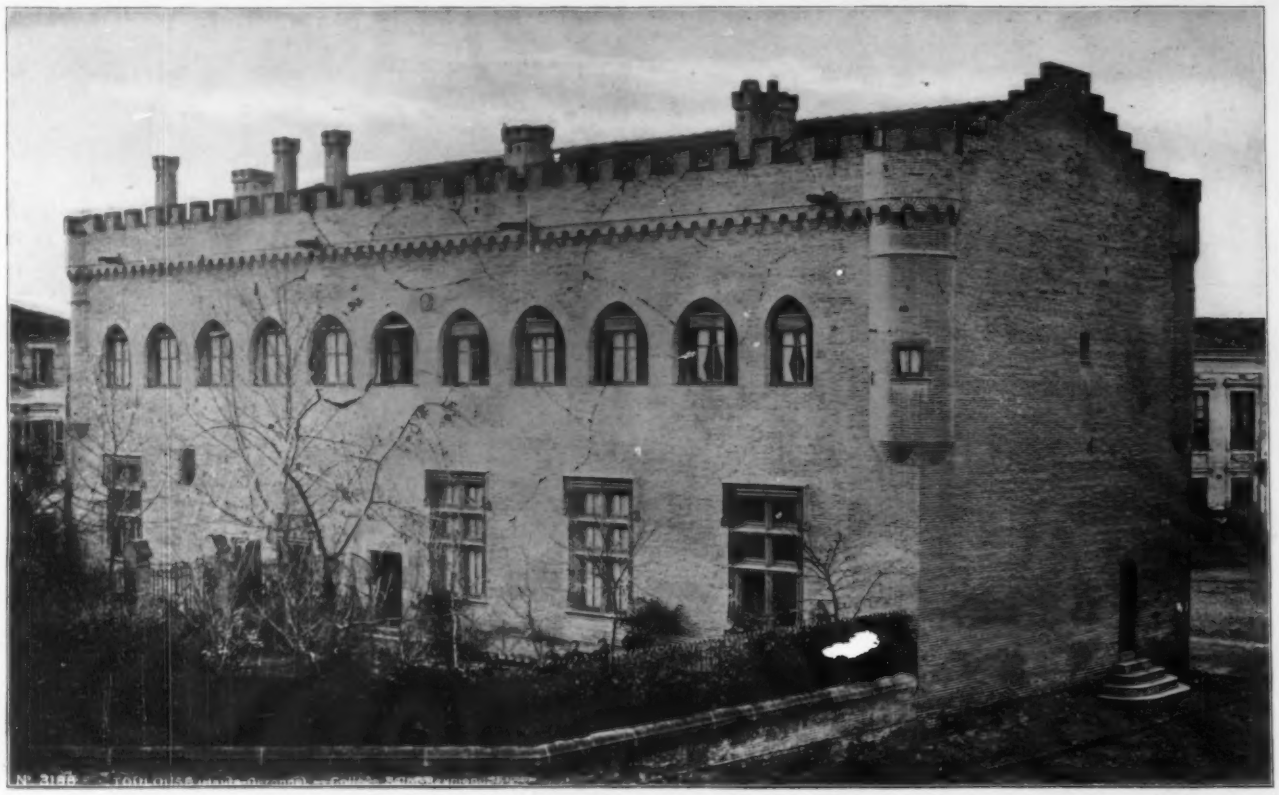
BY JEAN SCHOPFER.

OF all French cities, Toulouse is assuredly the one possessing the largest number of brick monuments, varying in date from the Romanic period down to modern times. Whereas in nearly all the other parts of France, a few districts in Normandy excepted, good building stone is found, in the southwest there is none. Its place is taken by brick. A virtue is made of necessity: that is to say, some remarkable brick edifices are constructed. It is, therefore, to Toulouse that one must go to find the most typical examples of brick architecture of the different periods — Romanesque, Gothic, Renaissance and modern. It is true, as regards the Gothic period, that Toulouse cannot boast of such a fine church as

DUNGEON IN COURTYARD OF CAPITOL, TOULOUSE.

is the admirable cathedral at Albi, which we brought to the notice of THE BRICKBUILDER readers last year. Albi Cathedral remains the masterpiece, as far as brick is concerned, of religious architecture of the Middle Ages; but Toulouse has several Gothic monuments also, and can pride itself upon having erected the biggest French Romanesque church — and one of the most perfect — that of St. Sernin's.

The Church of St. Sernin of Toulouse, of which we give several views, was begun in the eleventh century. It was intended to place therein the body of Saint-Saturnin, first bishop of Toulouse, and relics of six apostles. Saint-Saturnin was held in great veneration, and many were the offerings made for the erection of a church in his memory. Moreover, the county of Toulouse was at that time a very rich province, the Albigensian Crusade not having yet ruined it. Agriculture and the arts flour-

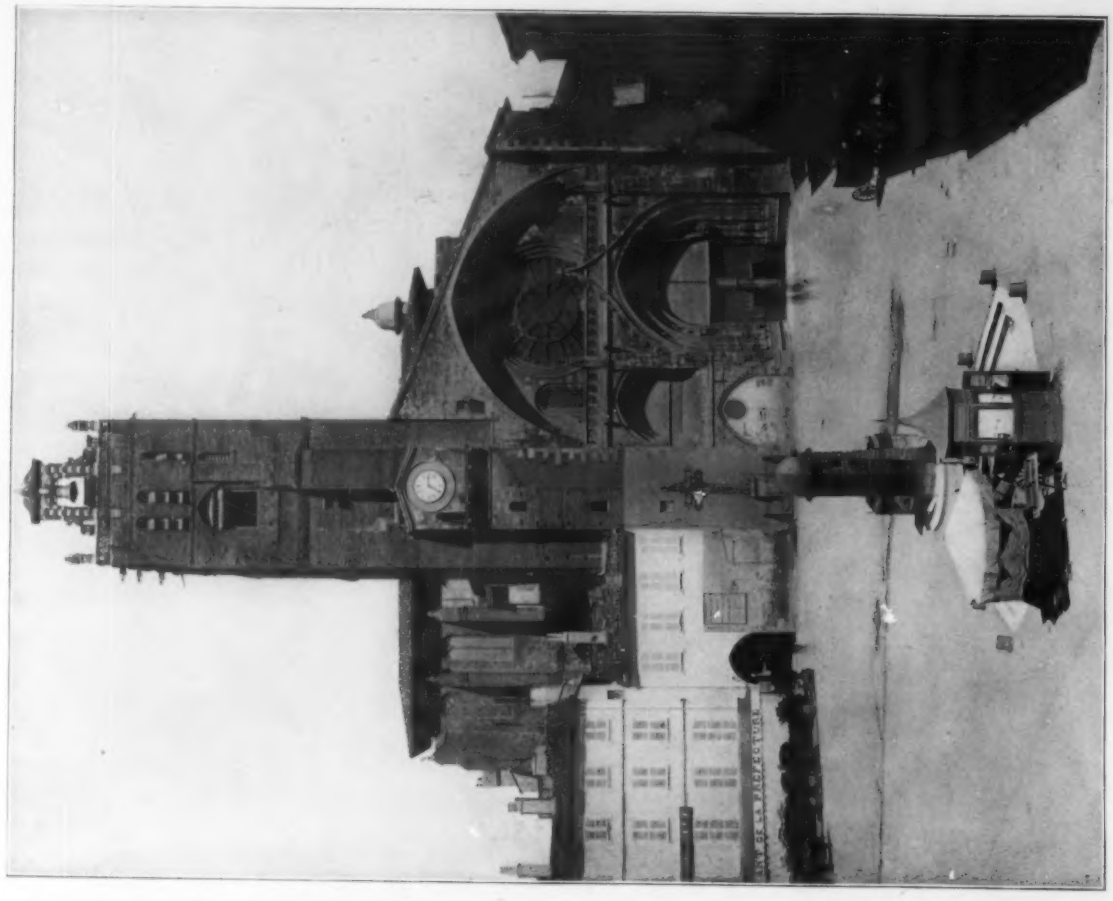


HOTEL RAYMOND, TOULOUSE.

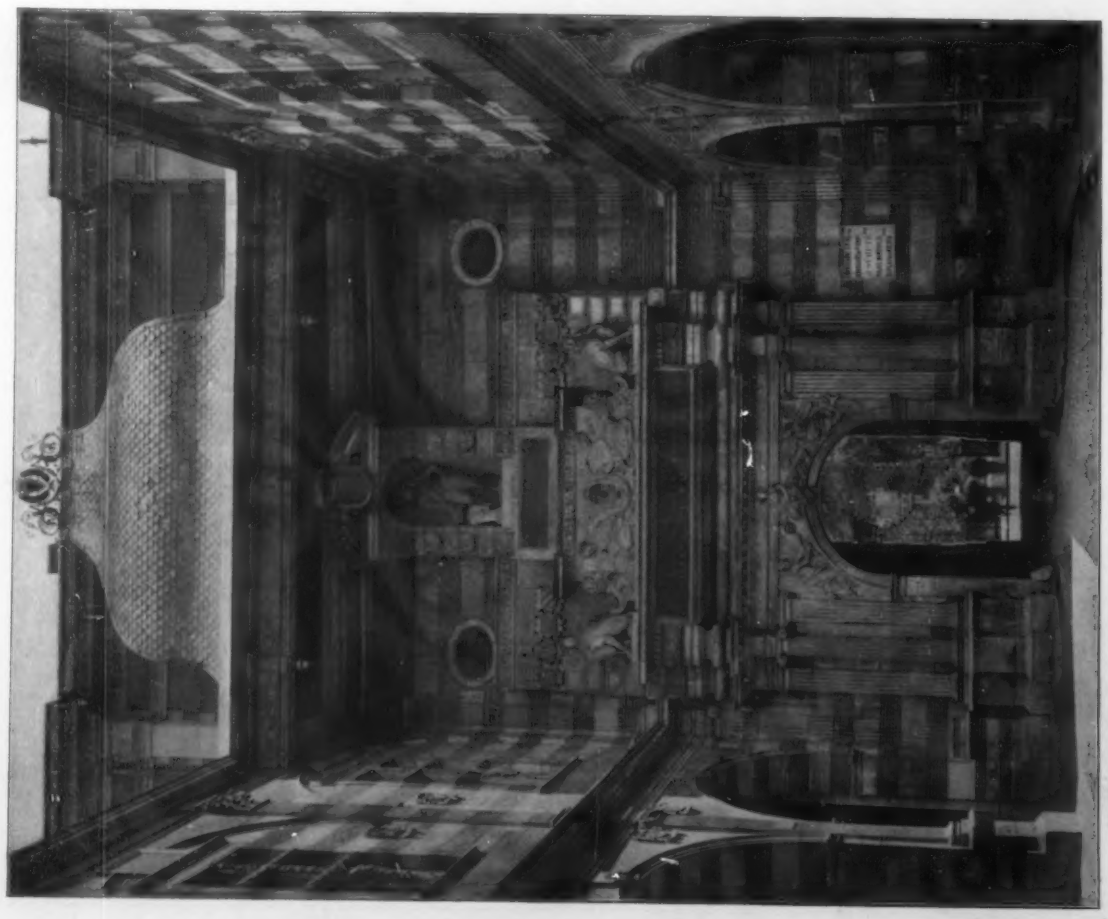
GENERAL VIEW, CHURCH OF ST. SERNIN, TOULOUSE.

THE PONT NEUF BRIDGE, TOULOUSE.

COURTYARD OF MUSEUM, TOULOUSE.



ST. STEPHEN'S CATHEDRAL, TOULOUSE.



COURTYARD OF HENRY IV, IN THE CAPITOL, TOULOUSE.

ished there, and it was one of the parts of France where civilization promised to reach a high state of perfection.

As we have said, the Church of St. Sernin's was commenced about the year 1080. A first consecration of it took place sixteen years later, that is, in 1096, at which Pope Urban II officiated. At that time there was only the crypt, which has remained celebrated to this day. The central tower was finished in 1130. It was much less high then than it is now, as can easily be seen by an examination of the illustration. The two upper stories and the spire are not Romanesque like the rest of the edifice, having been built a century later, that is to say, in the thirteenth century, when the Chapter of St. Sernin's decided to carry the steeple higher, in order that it might be visible from a greater distance to the pilgrims who came to Toulouse.

Toulouse was a halting place on the road of one of the principal pilgrimages of the Middle Ages. Pilgrims from France first went to the Abbey of Conques; they next visited St. Sernin of Toulouse, and arrived finally at St. Jacques de Compostelle in Spain. As may be imagined, they left offerings at each sanctuary: hence the wealth of these three churches.

The two parts of the tower, the Romanesque and the Gothic, are perfectly distinct.

St. Sernin's was entirely vaulted in the twelfth century, but, as happened to every large church, it was not entirely completed. Two centuries more of intermittent work was needed. Some additions were made in the fifteenth century, and in the nineteenth a thorough restoration of the church was undertaken by Viollet le Duc, who has been succeeded by M. de Baudot.

The church is a cruciform edifice with five naves, a chevet and five apses. It cannot be said that its style is peculiar to the Toulousian school.

We know that during the Romanesque period there were different solutions, according to the province, of the problem which exercised the minds of the architects of those days, — that of vaulting large spaces in the safest and at the same time most economical manner. This is how there came to be in the Romanesque style alone, the Norman, the Burgundian, the Provencial, the Poitou and the Auvergnian schools, each of which evolved a type markedly different from the others. And yet there is no Toulousian school. On the contrary, St. Sernin's is a thorough example of the Auvergnian school, of which it possesses all the characteristics. It has the double aisles with semi-barrel vaults which distinguish that school; the principal nave has no direct lights; the inner aisle has a gallery, a feature which is also found in the churches of Auvergne. Much discussion has taken place regarding these galleries. They are dark, cannot accommodate worshipers, and have no architectural *raison d'être*. Probably they served as storerooms for the articles of value which the crusaders left behind them when starting for the Holy Land. In any case it was during the time of the Crusades that they were built, and none were built afterwards. We know also that Mussulmans, when leaving for Mecca, deposit their valuables in the mosques.

The dimensions of St. Sernin's are considerable. Its total length is 380 feet. The transept measures 211 feet. The nave is no less than 108 feet wide. The outer aisle is 24 feet in height and the inner one 32 feet. The nave has a height of 73 feet, while the steeple rises to 212 feet from the ground. It is to be noted that the axis of the church is slightly inclined towards the north. This is one of those intentional deviations cleverly resorted to by architects of the Middle Ages for the purpose of extending the perspectives.

St. Sernin's, by its dimensions and by the beauty of its plan and construction, is one of the most remarkable of Romanesque churches. It bears the same relation to the other monuments of that time that Amiens Cathedral bears to the churches of the thirteenth century.

The various views we present speak for themselves, and little comment is necessary.

A general view is given showing the western front, which unfortunately is unfinished and lacks the richness of aspect offered by the aisles and the chevet. The sculptural decoration throughout the edifice is of the most sober kind.

With regard to the belfry it will be noticed that in the upper and Gothic portion brick is employed in a truly constructive manner, there being triangular tops to the window crownings, which is an economical imitation of the ogive for use in brick buildings.

The view of the aisles shows the rich decorative effect produced by the intelligent use of brick mixed with white stone. In the oculus above the doors we find those polychrome mosaics that were so much in favor with the Auvergnian school. The aisle door is a fine piece of Romanesque architecture. The outer door belongs to the Renaissance period, and is built of stone. In St. Sernin's we observe the constant employment of those small arcades which are such a typical ornament in good brick architecture, and whose origin must be traced back to the Byzantine edifices at Ravenna.

A general view of the chevet shows the nine small apses flanking the transept and the choir, and a detail of the same part of the church enables one to admire in all its beauty this masterpiece of Romanesque architecture in brick.

St. Stephen's Cathedral, begun in the thirteenth century, is another edifice of considerable size constructed in brick. But the fortunes of Toulouse underwent reverses, and the cathedral was never completed as it ought to have been. Its nave is ancient, and very interesting from the standpoint of brick construction. It has three bays, 50 feet in length and as much as 65 feet wide. The vault is the Roman groined vault with salient ribs. The front, which we reproduce, has never been finished. It dates from the sixteenth and seventeenth centuries, and has a big tower, the crowning of which is quite Renaissance. The illustration shows clearly the thick buttresses in brick.

Amongst monuments belonging to the period of transition from Gothic to Renaissance we will mention the dungeon in the courtyard of the Capitol — the Toulouse *Hôtel de Ville*. It is a small building flanked by four small towers intended for sheltering sentries. It has been restored within the last fifteen years.

Another fine specimen of brick construction of the same period is the old *Hôtel Raymond*. This is a house with battlements and a machicoulis; but it is only strong in appearance, and one sees by other details — the windows, for instance — that the builders never expected

that the edifice would have to sustain a siege. The taste for making this parade of defensive works comes from those earlier times when Toulouse had to bear the brunt of political and religious strife.

Bachelier, who was not only an architect but a good decorator, commenced at Toulouse the erection of a bridge—the *Pont Neuf*—which was finished by his son. The work was begun in 1546 and only completed in 1626. It is a splendid brick bridge, crossing the Garonne on seven arches. Our illustration sufficiently indicates the care with which it was constructed. The materials used were of excellent quality, and the bridge, which is four centuries old, is as sound now as the first day, although it has had to withstand some terrible floods, as the Garonne, which rises in the adjacent Pyrenees, is subject to sudden overflows of a dangerous character, Two suspension bridges were carried away by floods in the month of June, 1875. This bridge dates from the Renaissance.

Henry the Fourth's courtyard, in the Capitol at Toulouse, is somewhat late Renaissance. It is of elegant design, pleasing in color with its alternate layers of brick and stone, and decorated quite in accordance with the very ornate method peculiar to Toulouse. A statue of Henri IV stands over the doorway. It was in this pleasant courtyard that Duke Henry II of Montmorency was beheaded in 1632, by the king's order, for conspiring against the state.

Our final illustration shows the courtyard of the present Museum. It is an old convent of the Augustines, one of the chief brick edifices of mediæval Toulouse. This courtyard was a small cloister, dating from the Renaissance, as can easily be seen. It is a very ornate building, with bas-reliefs and statues. We call attention, from a *brick* point of view, to the really curious pilasters between the little arcades. It is an adaptation in brick of forms which originated in stone construction.

Such are the few Toulousian monuments which I desired to bring before the readers of THE BRICKBUILDER. It is certain that Toulouse has been, at all periods, a city where good architecture has been done, that she holds a worthy position in the history of French art, and that she has employed nothing but brick for her principal and most enduring edifices.

SIZE OF BRICKS.

The following bill was recently submitted to the legislature of Massachusetts :

SECTION 1. From the first day of July of the year nineteen hundred and three, all bricks manufactured or sold in this commonwealth shall be known as standard or seconds.

SECTION 2. The size of standard face bricks shall be eight and three-eighths by four and one-eighth by two and one-fourth inches, and the size of standard common bricks shall be eight and one-fourth by four by two and one-fourth inches.

SECTION 3. All bricks not of standard size shall be seconds.

The Oneida County Courthouse at Utica, N. Y.

DESCRIPTION OF PLANS BY OLIN W. CUTTER.

BRIEFLY stated, the principal points to which attention is asked are as follows, viz.:

The amount of floor space that will be finally allotted to the departments of the county clerk, surrogate and treasurer, which should be on the first floor, is what will determine the size of the proposed building.

The floor space given them in the accompanying drawings is practically about what is suggested in the "conditions," and the plans have been worked out on this basis, rather than upon that of the general dimensions suggested of a building 100 x 150 feet, more or less, in size.

The clerk of the courts has on the floor of first story	6,622 sq. ft.
The clerk of the courts has on the floor of the basement	480 sq. ft.
Total	7,102 sq. ft.
The surrogate has on the floor of the first story	2,806 sq. ft.
The surrogate has on the floor of the basement	1,176 sq. ft.
Total	3,982 sq. ft.

These figures do not include partitions, closets and galleries.

To obtain a satisfactory arrangement of the important rooms of the building the less important ones cannot in every instance conform to the dimensions suggested and are perhaps a little larger than desired in some places.

Planning is but compromising, giving and taking a little here and there until the end and aim sought for is attained.

If the plan submitted is satisfactory in arrangement and a reduction of square foot area of the various rooms is permissible, a blanket shrinkage of the whole plan could be made by changing the scale and reducing all parts uniformly.

The hall and corridors are ample for the purposes of the building. Where there is a possibility of congestion on account of crowds, lobbies have been added to provide for them.

The court rooms have been arranged so that the bench faces lengthwise the room and is connected directly with the retiring rooms.

The conditions governing light around and about the jury seats have been closely followed.

The entrances to surrogate's and clerk of court's departments are located in the center of them rather than at the main entrance of the building, for the convenience of those doing business in these departments, both as regard access to elevators and stairs and also for a more even division of the rooms.

These rooms are intended to open up into one another through arches and colonnades (except where doors are shown) for light and air.

To minimize the square foot area of the first floor and thereby keep down the size of the building to somewhere near the area suggested in the conditions it is essential that some one of the departments, for which a first-floor location is desired, be located elsewhere, and it seems

proper that it should be the sheriff's rooms, as they require a larger area than can be conveniently provided for in basement.

The offices are on the corner of Elizabeth and Charlotte streets, they are above grade at this point and have a subcellar under same.

For accessibility there is no better location in the building.

Attention is called to the means of getting grand jury witnesses to the witness room by means of a private stairway from third floor to mezzanine floor, avoiding contact with members of grand jury or occupants of offices of district attorney; also to the passage from offices of district attorney to grand jury room and to witness room, avoiding contact with the public.

In other respects the plans are self-explanatory.

DESCRIPTION OF PLANS BY GREEN & WICKS.

The design shows a building 167 ft. 0 in. front on Elizabeth Street, by 98 ft. 0 in. front on Charlotte Street, containing an area of 16,366 square feet. The height of the building is as follows:

	ft.	in.
Basement	10	0
First story	16	0
Second story	18	0
Third story	18	0
Fourth story	16	0
Space taken for thickness of floors and roof	18	0
Making a total height of	96	0
taken from basement floor to top of cornice, containing	1,571,136 cu. ft.	

There is added on the east end of the building, in order to make county clerk's offices proper size (not needed in upper floors), a bay 15 ft. 0 in. wide by 48 ft. 0 in. long, containing an area of 720 square feet. The height of the bay is as follows:

	ft.	in.
Basement	10	0
First story	16	0
Space taken for thickness of floor and roof	6	0
Making a total height of	32	0
from basement floor to top of cornice, containing	3,040 cu. ft.	
Making a grand total for contents of building	1,594,176 cu ft.	

Round or octagonal rotundas and domes are avoided as not essential to the design, and making added expense.

The names and sizes given in the schedule for various rooms have been quite closely followed, but it seems that some few of them might be disposed of, and some made of greater or lesser area, the net reduction and omission making the building somewhat less in size.

ARRANGEMENT.

The steps placed inside of building to rise from grade to first floor, Elizabeth Street front, make the most of the central grouping of windows, and at the same time save largely the expense that would be incurred by a large porch and a flight of outside steps.

The main courts are placed on the north front of the building, so as to be free of morning and afternoon streaming sun. It enables the use of large windows as central features to that elevation of the building. This position of main court rooms and supervisors' rooms, one over the other, simplifies the construction and makes it readily possible to place a vent and heating flue shaft at each end of these larger rooms. Shafts may be increased or decreased, as may be required. In minor rooms it is not so important to have windows symmetrically spaced. If desired, the light which comes behind the jurors may be intercepted by screens or shades. It seems that jurors would be quite as well seated if placed in two rows of six each rather than three rows of four each. It would give more room for the witness and attorneys, and would not be so difficult to pass objects illustrating the case from one juror to the other. However, this is a detail that may be taken up later with the successful competitor. The grouping or placing of jury box, judge's bench, attorneys' tables, dock, stenographers, etc., has been roughly indicated as to size or position.

The basement contains a certain amount of surplus room, which is given to the sheriff's quarters and coroner's quarters and to storage. It is suggested that it might be advisable, as the basement is so well lighted and accessible, to place the sheriff's entire suite of rooms in that story.

The small lavatories about the building for the heads of the various departments (excepting those for judges) might be combined in one special lavatory, — such a lavatory is indicated in basement floor, — but if distributed about the building it is suggested that little slits of windows be placed in the piers; they may be treated in such a minor way as not to be noticed in the general design.

If from time to time storage other than is supplied in direct connection with the various departments is needed the old papers may be removed to rooms placed over many of the minor rooms of the building. These rooms may be reached from the halfway landings of main stairs to each story, or by small minor stairs.

Areas have been placed on the Mary Street side of the building, extending down the ends towards Elizabeth Street, in view of making the basement dry and well lighted (the area being drained at the bottom).

HEATING.

The building to be heated by low pressure, gravity return, steam apparatus; boilers placed in basement, near Mary Street, where coal can be received and ashes removed with a minimum amount of labor; radiators placed in all rooms.

VENTILATION.

Fresh air to be forced into such rooms as require positive circulation of air through them by steel-housed, electric-driven fans placed in basement, taking air supply from outside air and also provided with arrangements for taking air from corridor during the night if desired; the air to be warmed by steam coils before it is delivered into the rooms. The inlet into rooms will be placed high up on side walls, so that there will be no currents near the level of the occupants of the room.

There are also to be outlet air flues from the various rooms requiring ventilation, having one opening near the floor and one near the ceiling into each flue, for either lower or upper extraction of the air in room, these flues to be connected in attic to heated chambers, or to electric-driven fans for the removal of air from rooms.

Fireproofing.

ON the 26th of February, 1903, a fire occurred in the Roosevelt Building, corner of Broadway and Thirteenth Street, New York. This was a structure nominally of fireproof construction, but with ironwork only partially protected, and was occupied for mercantile and light manufacturing purposes, the eight stories all being filled with considerable stocks of clothing and similar goods. The building was of steel skeleton construction with cast iron interior columns, all of which were unprotected. The floors and the roof were constructed with terra-cotta hollow tile segmental arches, the flanges of the beams and also the girders being protected simply by plastering on expanded metal attached directly to the iron without an air space. The stairways were of iron and incombustible material; the freight elevator was enclosed in hollow tile partitions; two of the elevators were in a central stair and elevator well and enclosed only by an iron grille, though with an enclosure of hollow tile partition about the whole stair well.

The fire started at four o'clock in the morning in the rear of the sixth story, spread very rapidly and ascended the central stair and elevator shaft which was not cut off except by thin glass windows in wooden sashes, and entered each of the floors above. The sixth and seventh stories were partially subdivided by two-inch hollow tile partitions, and these succeeded admirably in confining most of the fire on these floors to the southern half. In the eighth floor the fire produced the greatest damage. Five of the cast iron columns supporting the roof broke off clean about two feet from the top (it could not be determined positively whether this was due to the heat alone or to water being played on them during the progress of the fire), and all of the remaining columns were badly warped and twisted; likewise part of the framework of the outer walls, where the protection had been pulled off by the falling of the roof beams. The giving way of the columns caused the entire roof, excepting about one-third of the area in one corner, to fall, and in doing so one section of it fell through the eighth floor, making a hole in the same about 12 feet by 15 feet, and landed on the seventh floor, which sagged considerably (where hit) from the increased load but remained intact. Part of the roof in falling landed on the stair landing in the central shaft referred to and fell straight down through the building, carrying each landing with it in succession. The ironwork in the sixth and seventh floors appears to be in good condition, and structurally the building does not appear to be seriously damaged below the eighth floor, with the exception of the two broken floors where the roof fell through. The exterior walls being chiefly of brick and terra-cotta, damage to the same was slight.

It is apparent from this fire that terra-cotta floor arches and partition work stood admirably and undoubtedly saved the building from total destruction, but the value of these materials was offset to a very large degree by the faulty arrangement in plan of the central stairway, which permitted the fire to spread unchecked up and down throughout the building. The fire also demonstrated, what is almost axiomatic in modern construction, that unprotected iron is not suitable for building construction. Indeed, from an insurance standpoint, a fireproof building with unprotected ironwork and floors not cut off, when filled with merchandise, is scarcely better than an ordinarily constructed building, and as far as the stocks in such buildings are concerned, they are hardly as desirable, if all on one floor, as when in an ordinary building of medium height. The floors of a fireproof building act as a reverberating furnace, and stocks contained therein are liable to be most effectually cremated, but if they be distributed over several floors properly cut off, only that portion on the floor where the fire originated should suffer.

Another point which this fire emphasizes is the construction of the stairs. The treads were of stone, with no iron web underneath, such as is now required by the building law. Had these iron webs been in place, even though unprotected, they would have undoubtedly prevented the falling débris from crushing the successive landings in the stair well.

REDUCTION OF FIRE HAZARDS IN BUILDING CONSRUCTION.

PEREZ M. STEWART, superintendent, and Rudolph P. Miller, chief engineer of the New York Bureau of Buildings, have recently published a very valuable paper which emphasizes in a most remarkable way the statement made some time since by Mr. Edward Atkinson that the only persons who can prevent loss by fire are the owners or occupants of the insured premises. The indifference of such people to their moral obligations is something that the architect has to continually combat. The disposition of most people to take chances, to gamble on the fire risk, is one of the discouraging factors of modern civilization, and no matter how thoroughly we may construct our fireproof buildings, when the real test comes the experience of men like Mr. Stewart shows that the failure is not due to any lack of knowledge on the part of the constructors, but is chiefly chargeable to the indifference and often criminal negligence of owners or occupants. It is stated that the carpets in the hall of the Park Avenue Hotel were undoubtedly the cause of the spread of the fire in the several stories. We have seen a fireproof building filled with wooden sheathing and wooden ceilings which were finished with a varnish so inflammable that a slight blaze would spread like a flash over the whole surface of the wood. We confess to very little confidence in the so-called fireproofed woods. The experiments which have been conducted at the Massachusetts Institute of Technology certainly do not show that we are yet able to very materially increase the ultimate resistance of any wood to the destructive effect of fire. There are companies in the field to-day who are supplying absolutely incombustible materials for finish, for floors, and for doors and windows. That these are not used more generally surely can not be charged to any lack of development of fireproofing as a science or to a lack of knowledge on the part of architects. Again, the fire laws of nearly all of our cities seem to be based on an assumption that height is a measure of fire risk, and that a low building can safely be constructed in almost any way. In New York the Building Code restricts all non-

fireproof buildings to a height of seventy-five feet, and the result is that the great majority of structures which go up every year are under that height. This includes dwellings, convents, dormitories, clubhouses and other residence buildings, and also six-story tenement houses and apartments. The most helpless and least responsible inhabitants of the city pass most of their lives in such structures, and property owners are perfectly willing to take the risks and pay the insurance companies, while public sentiment allows such conditions to continue to the menace of the whole city. Again, as Mr. Stewart points out very truly, the law may require fireproof shutters and the owner may go so far as to put in metal sashes and even wire glass, but unless these are equipped with some form of automatic self-closing device, which is practically never the case in public buildings, a fire may start and be communicated through the openings of unclosed fireproof windows or doors with such speed as to endanger the whole structure before the fire department can arrive. The paper makes clear the statement which we have reiterated so frequently, that the real development for the future in the line of fireproof engineering must be in the more general education of property owners and tenants.

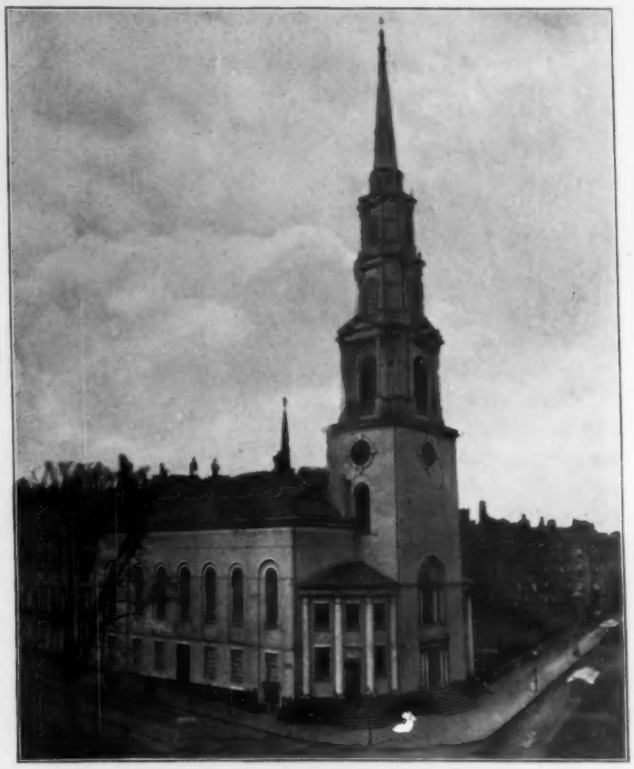
FIRE LOSS IN LIFE.

THE greatest danger to personal safety in a fire arises not so much from the fire itself or the immediate damage by the flames as to the building or to its contents, but rather from first smoke and next insufficient or inefficient means of egress. Only in extreme cases do we find human beings actually burned to death. Rarely does the flame even touch them. But the vast volume of smoke which even a slight blaze will cause, especially in the interior of a building, is what does most of the damage. It is therefore of the utmost importance that wood which ignites and smoulders very readily should form no part of either the construction or the finish of a building which is intended to afford protection against fire. In the Park Avenue Hotel fire in New York the actual damage by the flames was insignificant, but smoke killed a number of people. In the fire in the Hotel Lincoln, Chicago, last December, the volume of smoke was so great that escape by the narrow passages and areas was impossible and fourteen persons were killed. There probably is not a modern fireproof building constructed to-day that would be seriously damaged by any ordinary fire within its walls. On the other hand, it is perfectly conceivable that a fire which could be confined in its materially destructive effects to a few rooms might by reason of smoke imperil the lives of all the occupants of the upper floors of almost any of our large office buildings. So far as we know there is not in existence to-day a commercial structure in which the finish and the furnishings are non-inflammable. That such conditions will change at some time in the future there can be no question. The price we pay for our slow burning construction, our elaborate wood finish, and our carpets and draperies is too high, and the time is rapidly approaching when we will discover a better way, and avoiding then as we do now the danger to the structure we will be able to absolutely check the liability of death from smoke.

Selected Miscellany.

THE PARK STREET CHURCH.

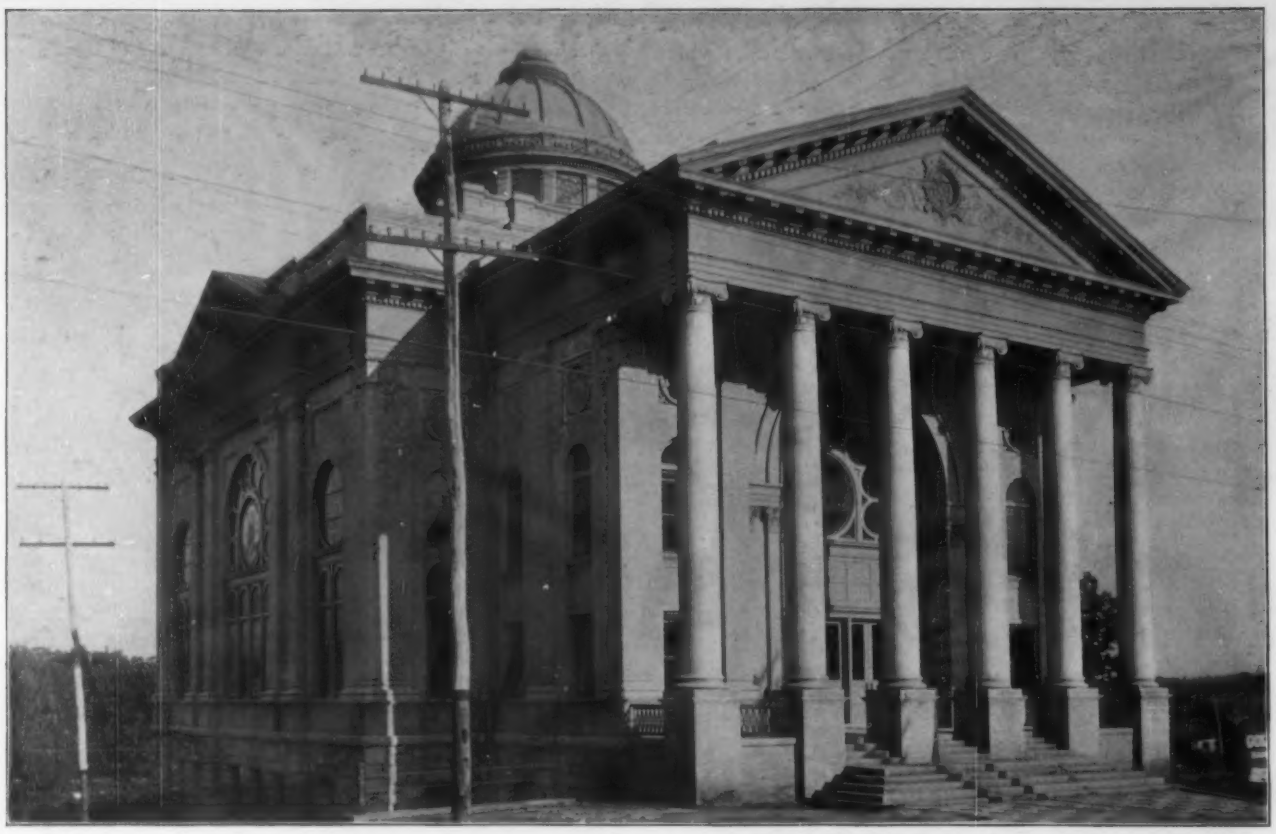
FOR years Boston has been one of the most picturesque of our modern cities. The happy mingling of the old and the new, the delightful absence of exact mathematical lines in the business portion of the city, have



PARK STREET CHURCH, BOSTON.

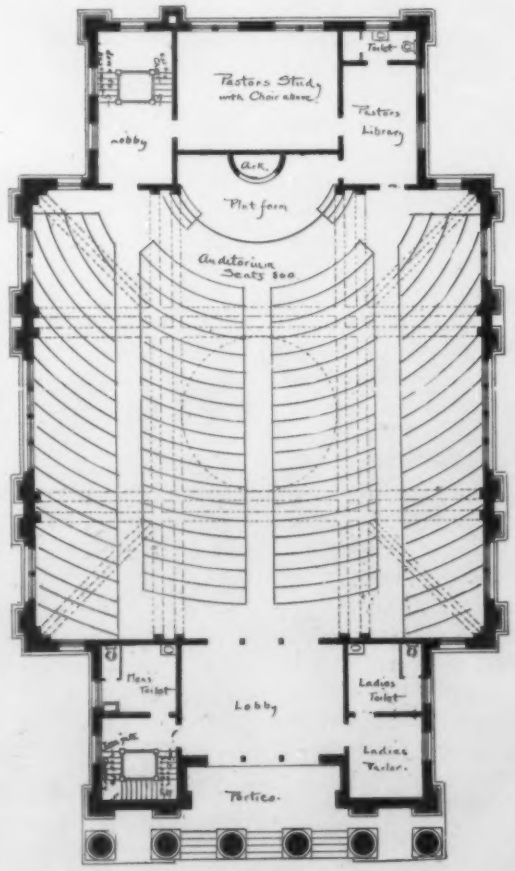
given its streets a rare distinction, and probably the most interesting feature of the whole city was the Park Street Church which now stands between the Common and the Granary Burying Ground, lifting its graceful spire above the mass of foliage on each side. The congregation which owns the property has changed in char-

PANEL, POWER HOUSE, STATE CAPITOL, ST. PAUL, MINN.
American Terra-Cotta and Ceramic Company, Makers.
Cass Gilbert, Architect.



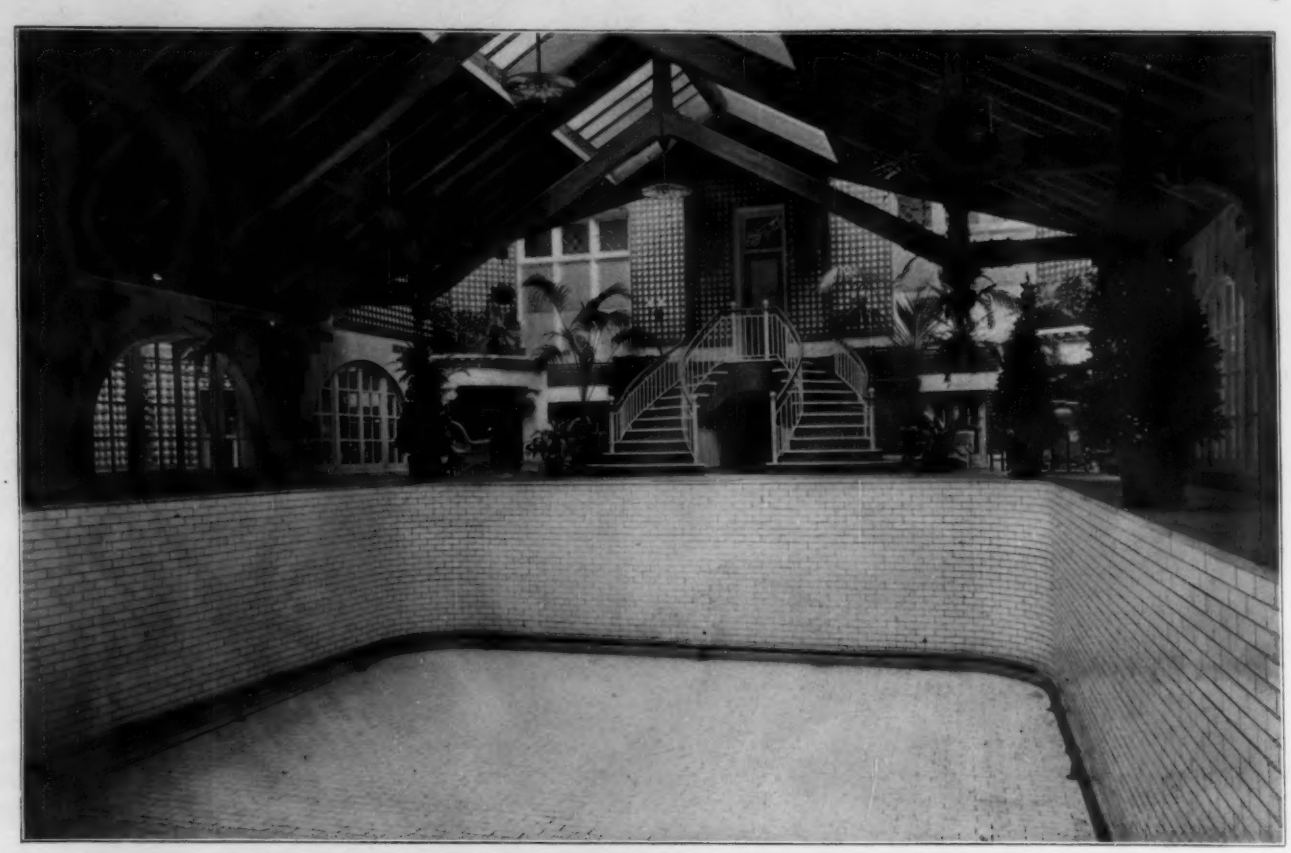
HEBREW TEMPLE, ATLANTA, GA. W. F. DENNY, ARCHITECT.
Built of "Shawnee" Brick, made by Ohio Mining and Manufacturing Company.

acter. Many members have moved away to other portions of the city, and the value of the building as a down town place of worship has passed away. The property has just been sold to a syndicate, which, realizing the commercial value of the site, have paid something like one hundred and fifty dollars a square foot, equivalent to over fifteen thousand dollars a front foot for the land, upon which a commercial building will shortly be erected. Thus will pass one of the most distinctive landmarks of Boston, a church dating from the early part of the last century, very pure in detail, with a most admirably designed spire which in the course of years has seemed particularly to belong to that special location. This loss is distinctly to be regretted, and no structure which will take its place, however worthy in an architectural sense, will compensate for what the city will lose. Such changes, however, are inevitable. The church extends back only a short



PLAN, HEBREW TEMPLE, ATLANTA, GA.

distance from Tremont Street along Park Street, and the remaining houses on Park Street facing the Common are sure in time to be occupied for commercial purposes, and if the church is going, it is better that it should go now while still in use and suitable for its purpose than to wait until it is hedged about and architecturally smothered by commercialism. The Boston Common will not seem right without this graceful spire closing the vista in the distance, and we even believe that the people of Boston themselves will insensibly feel the effect of the effacement of so distinctive a monument. Mr. James T. Kelly, a well-known Boston architect, has made the suggestion that the tower be preserved and moved to a point in the center of the Granary Burying Ground on the axis of Bromfield Street, but we can not feel much sympathy with this suggestion. The spire will seem out of place anywhere except just where it is now, and it would be scant pleasure to



SWIMMING TANK, WESTMORLEY COURT, DORMITORY, HARVARD UNIVERSITY.
Warren & Wetmore, Architects.
Showing use of radius enameled brick, made by American Enameled Brick and Tile Company.

come upon this excellent bit of architecture in other surroundings, in a different location, and perhaps put to a different use. The past century's advance in architectural possibilities has not been accompanied by unmitigated gain. When all our colonial monuments shall disappear we must show something better than the last twenty years have produced if our descendants are to have the local pride in the Boston of those times that we have taken in the city of to-day.

DETAIL, UPPER PORTION OF EIGHTEEN STORY OFFICE BUILDING, BROADWAY AND MAIDEN LANE, NEW YORK CITY.
Terra-Cotta made by Excelsior Terra-Cotta Company.
Clinton & Russell, Architects.

WIND PRESSURE ON HIGH CHIMNEYS.

THE Prussian Minister of Public Works has acted on a recommendation of the Prussian Building Academy and has issued a set of regulations governing the design of high chimneys, which are essentially as follows: The regulations generally prescribe an assumed wind

HOME FOR AGED MEN, BROOKLYN, N. Y.
Roofed with Ludowici Tile.
Lord, Hewlett & Hull, Architects.

HOUSE, GREEN STREET, PHILADELPHIA, PA.
Front of "Ironclay" Fire Flashed Brick.
O. W. Ketcham, Philadelphia Agent.

pressure of about twenty-six pounds per square foot on a plane perpendicular to the direction of the wind. Any possible suction on the leeward side is assumed to be included in this pressure. The wind area of the chimney is taken to be its vertical section, and if the chimney is polygonal its greatest diametral section is to be used. The point of application of the resultant of the wind pressure is to be assumed to coincide with the center of gravity of the section, which is equivalent to assuming a uniform distribution of the wind pressure over the full height of the chimney. For circular chimneys the total wind pressure area is to be reduced to two-thirds, and for octagonal chimneys to .71 of the value for rectangular chimneys. To determine the greatest pressure at the edges the wind should be assumed to act in a diagonal direction. The specifications allow the theoretical opening of the joints to the center of gravity of the section, thus neglecting the tensile stresses. The compressive stresses should be determined for wind pressures of 26 and 31 pounds per square foot. The weight of the material per unit of volume should be that of the actual material used. The allowable unit stresses were fixed as follows: For common brickwork laid in lime mortar (1:3), 100 pounds per square inch; for hard burnt bricks, having a compressive strength of at least 3,160 pounds per square inch, laid in cement-lime mortar (1 cement, 2 lime, 6 to 8 sand), 171 to 214 pounds per square inch. For the stronger stones and mortar richer in cement, higher stresses are allowable, but a factor of safety of 10 must always be provided for, and in no case should the greatest pressure exceed 316 pounds per square inch for a wind pressure of 26 pounds per square foot. If higher unit stresses be deemed allowable they should be justified by tests on blocks of masonry. The allowable compressive stress on the foundation is, for unrammed concrete, 85 to 114, and for rammed concrete 142 to 214 pounds per square foot. The allowable bearing pressure on the soil for the assumption of 26 to 31 pounds per square foot wind pressure is, as a rule, 61 pounds, and exceptionally 82 pounds per square inch, equal respectively to very nearly 4½ and 6 tons per square foot. — *British Brickbuilder.*

DRAWING TAUGHT BY CORRESPONDENCE.

It is not easy to teach the art of drawing by correspondence, but the task is greatly simplified by thorough analysis and presentation of the practical, mechanical

DETAIL BY BERNSTEIN & BERNSTEIN, ARCHITECTS.
New Jersey Terra-Cotta Company, Makers.

features of draughting. This has been done most admirably by the American School of Correspondence in its series of instruction papers on the subject of mechanical drawing. The course in this subject as laid out is a very exacting one and demands a great deal of the student, but we imagine that the young men who follow the courses in this school are the kind who would welcome the thorough training which is placed within their reach and will be only too glad to profit by the excellent opportunities which the American School of Correspondence offers to the ambitious young man who desires to give himself an education without having the means or the opportunity for a regular college course.

IN GENERAL.

Carl E. Nystrom, architect, formerly of Laurium, Mich., has formed a copartnership with Frank L. Young, under the name of Young & Nystrom, for the practice of

DETAILS BY PAUL J. PELZ, ARCHITECT.
Conkling-Armstrong Terra-Cotta Company, Makers.

architecture. The new firm has taken offices in the Manhattan Building, Duluth, Minn.

Charles H. Hopson, architect, has opened an office in Selma, Ala., and would be glad to receive manufacturers' catalogues and samples.

Francis J. Plym, architect, has opened an office in the Kemper Building, Kansas City, Mo., and would be glad to receive manufacturers' catalogues and samples.

Sayre & Fisher Company bricks have been specified for the following new work: Compton Trust Building, Boston, Winslow & Bigelow, architects; Rockville Library, Rockville, Conn., Charles A. Platt, architect. Enameled brick for the Gurney Building, Hartwell, Richardson & Driver, architects. Semi-glazed brick for the interior of the Edison Building, Boston, Winslow & Bigelow, architects.

We seldom stop to think of the important part which

UNION PASSENGER STATION, GRAND RAPIDS, MICH.
D. H. Burnham & Co., Architects. Architectural Terra-Cottta made by Northwestern Terra-Cotta Company.

Samuel E. Edwards and J. C. Sunderland have formed a copartnership for the practice of architecture, under the firm name of Edwards & Sunderland. Offices, Sheidley Building, Kansas City, Mo.

Charles Bacon, Boston agent for the Celadon Roofing Tile Company, reports the following new contracts: Terminal Chambers for Metropolitan Water Board, Weston, Mass., Shepley, Rutan & Coolidge, architects; John Carter Brown Library, Shepley, Rutan & Coolidge, architects; house at Marion, Mass., Coolidge & Carlson, architects.

machinery plays in the modern methods of manufacturing burnt clay into its various forms. It has been said, and with much truth, that the methods of our forefathers in making brick have scarcely been improved upon by succeeding generations. This, however, applies only to the common rough brick. A modern, up-to-date clay-working plant, the product of which has reached the higher stages of perfection, is one in which machinery in various forms is the principal agent in production. The manipulation of clay from the pit to the wall requires the assistance of machinery almost as much as does any other line of manufacture. Both quality and cost are depend-

ent upon the ability of the machinery to properly perform its duties. In this connection we are glad to call attention to the new catalogue which has been issued by the American Clay Working Machinery Company, of Bucyrus, Ohio. It is one of those trade volumes which gives a clear insight into the inner workings of the business which it represents. After a perusal of its pages one can but feel that the company incorporates in all it does the whole spirit of its motto, "Built Right! Run Right!"

CARTOUCHE BY K. M. MURCHISON, ARCHITECT.
Perth Amboy Terra-Cotta Company, Makers.

STATICS BY ALGEBRAIC AND GRAPHIC METHODS. By Lewis J. Johnson, C. E., Assistant Professor of Civil Engineering in Harvard University. New York: John Wiley & Sons. Price, $2.

This volume has been written in the hope of helping students of engineering and architecture to acquire a knowledge of statics which will include the power to apply it correctly in professional work. To this end an attempt has been made to carry out several specific purposes, prominent among which may be mentioned the following:

1. To give much attention to the starting points of the science, and to make as clear as possible the course of deduction therefrom.

2. To point out the inherent mathematical limitations of pure statics, and to show how all its important problems are solved.

DETAIL BY A. H. BOWDITCH, ARCHITECT.
Atlantic Terra-Cotta Company, Makers.

3. To develop algebraic and graphic methods of solution, or, if one prefer the terms, analytical and graphical statics, side by side and with equal thoroughness.

4. To present a graded set of problems illustrating not only universal principles but also how statics is used in engineering practice.

5. Finally, to keep the book of a size commensurate with the small amount of new matter which the reader, versed in the simplest operations of elementary mathematics, need master to gain the desired end.

WALL PAPERS AND WALL COVERINGS. A practical Handbook for Decorators, Paper Hangers, Architects, Builders and House Owners, with many half-tone and other illustrations, showing the latest designs. By Arthur Seymour Jennings. One large 8vo vol., cloth. Price, $2. New York: William T. Comstock.

The book attempts to cover more completely the subject than in the previous work. It is very elaborately illustrated with half-tones of the latest designs of a large number of manufacturers in America, England and France, and special chapters are devoted to English, American and French papers.

The whole subject seems to have been carefully and systematically studied, and is presented in a well-arranged manner, making it a valuable handbook both for the mechanic and designer.

DETAIL BY H. B. MULLIKEN, ARCHITECT.
New York Architectural Terra-Cotta Company, Makers.

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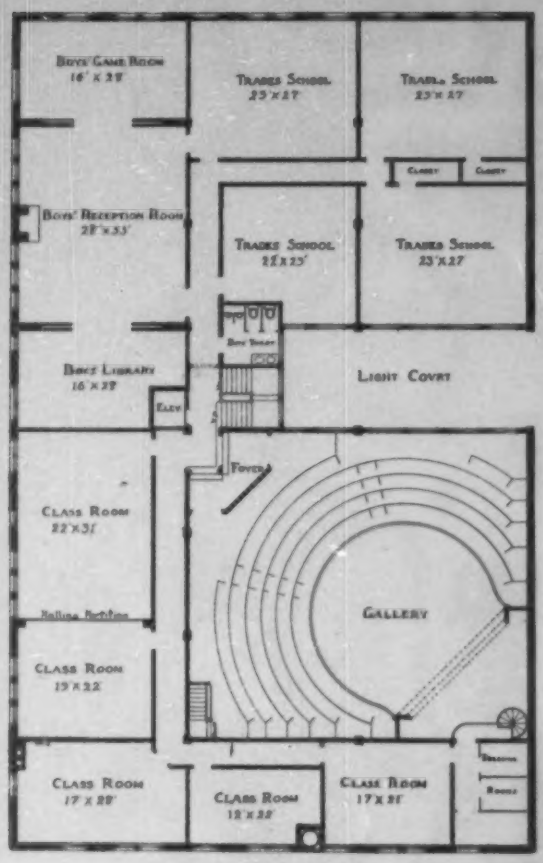
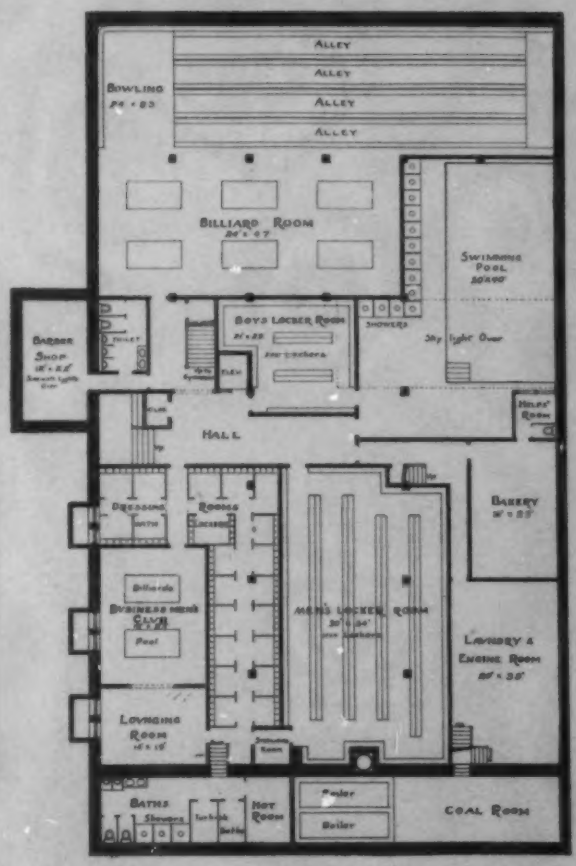
AMERICAN SCHOOL OF CORRESPONDENCE
at
ARMOUR INSTITUTE OF TECHNOLOGY
CHICAGO, ILL.

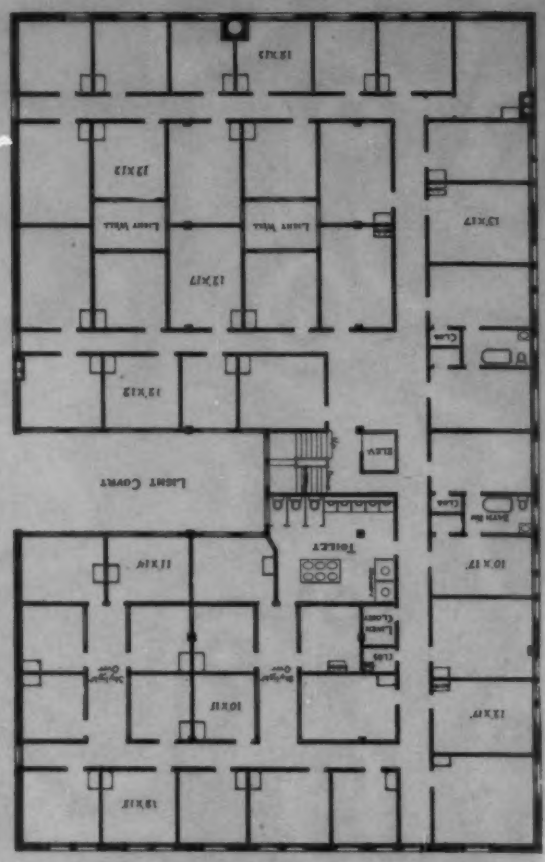
Mention THE BRICKBUILDER.



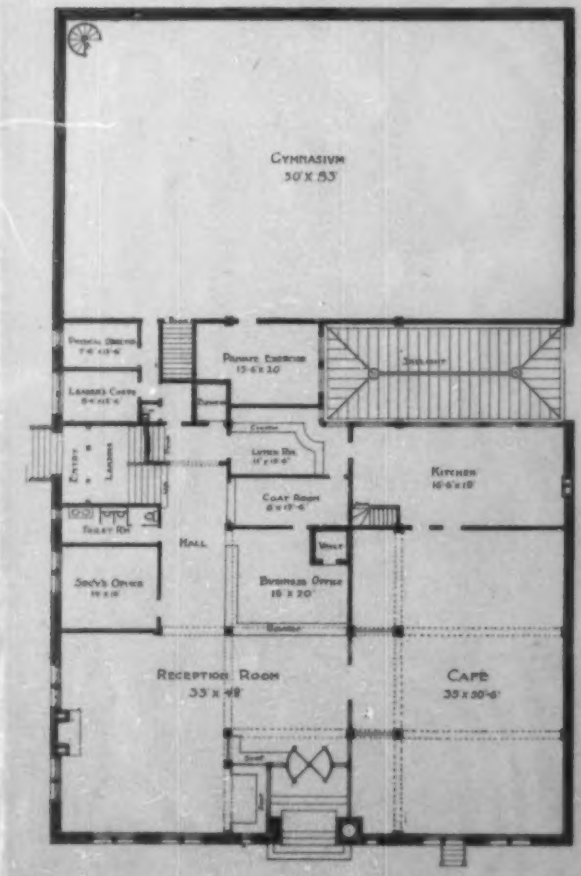
THIRD FLOOR PLAN.



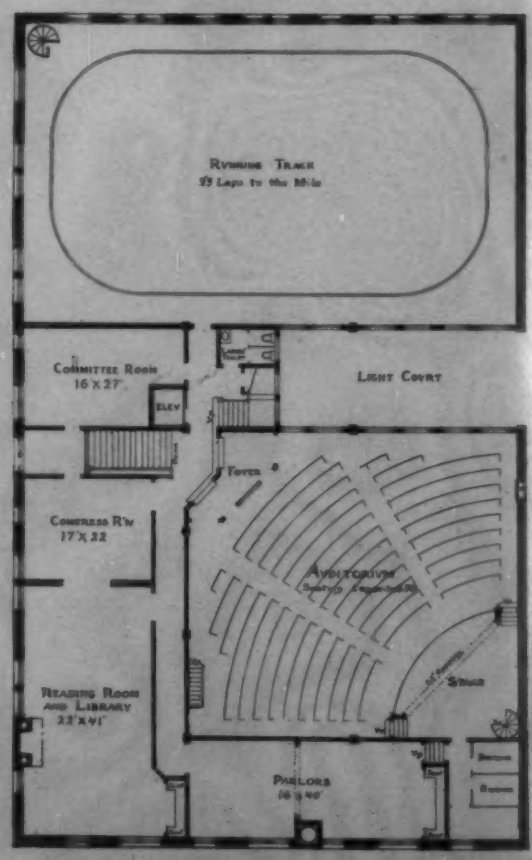
BASEMENT PLAN.



FOURTH FLOOR PLAN, DORMITORIES.



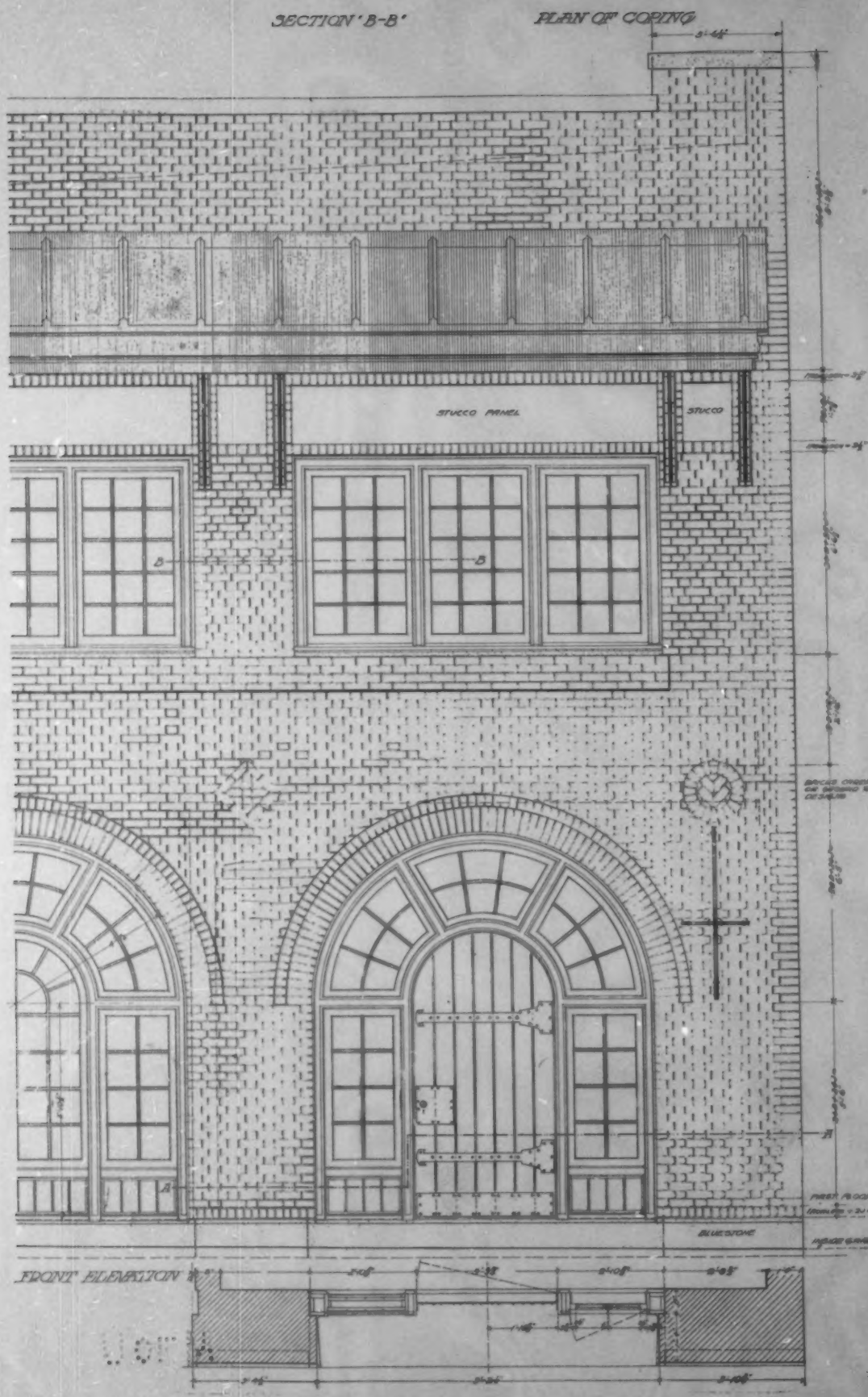
FIRST FLOOR PLAN.

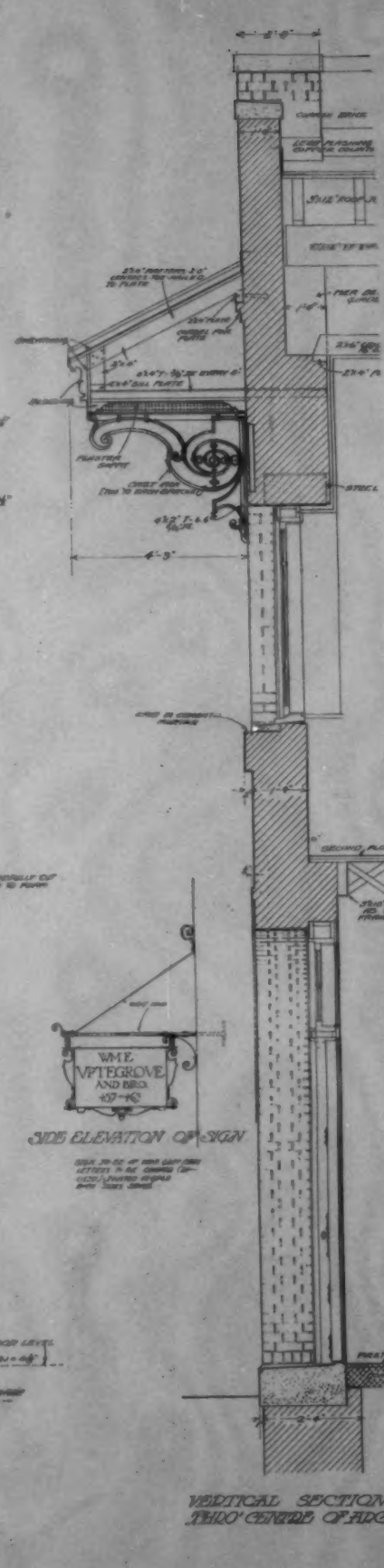


SECOND FLOOR PLAN.

PLANS, Y. M. C. A. BUILDING, AKRON, OHIO.

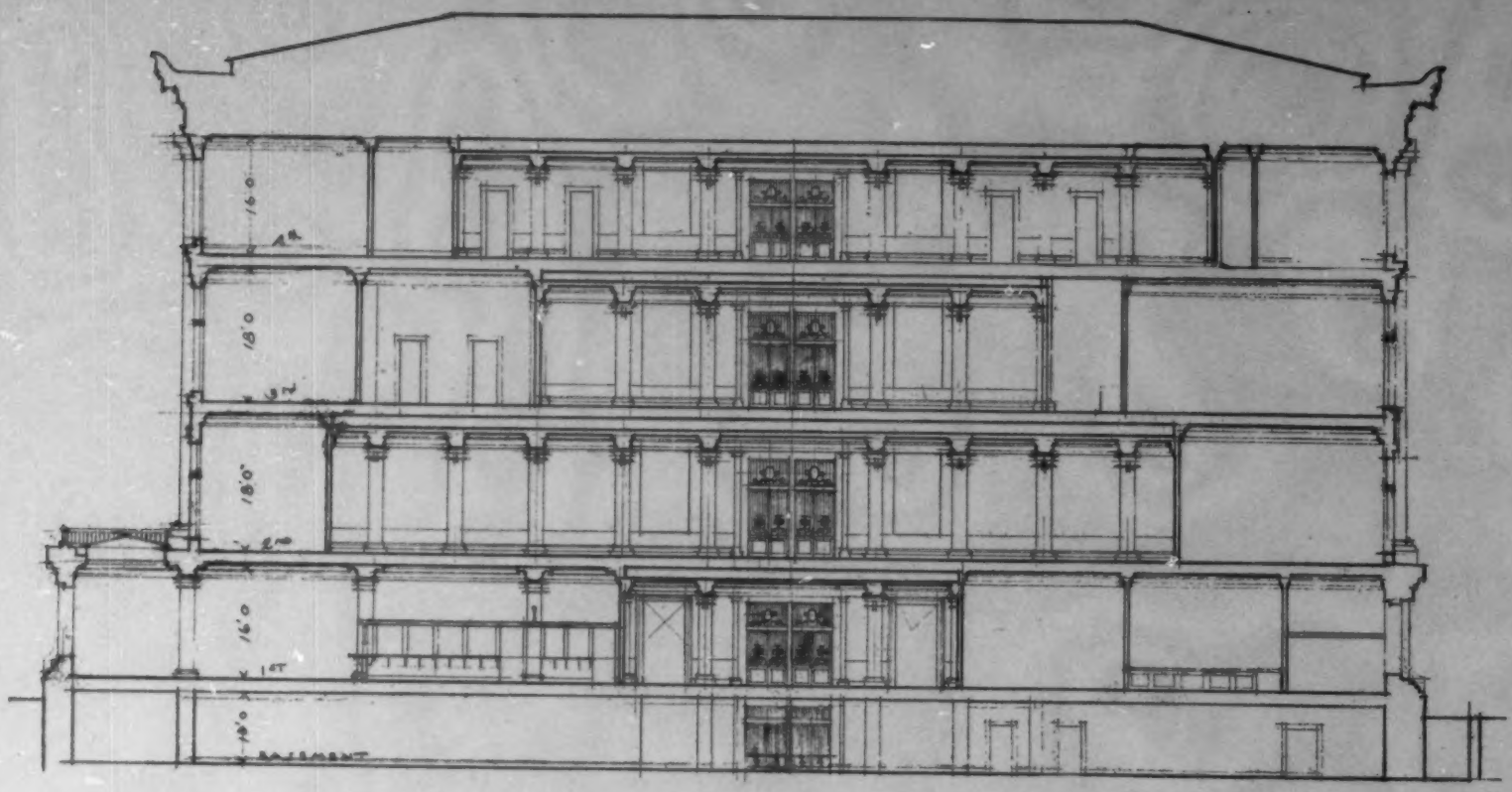
BUNTS & BLISS, ARCHITECTS.





DETAILS, OFFICE BUILDING 457 AND 463 EAST 10TH STREET, NEW YORK CITY.

WILKINSON & MAGONIGLE, ARCHITECTS.

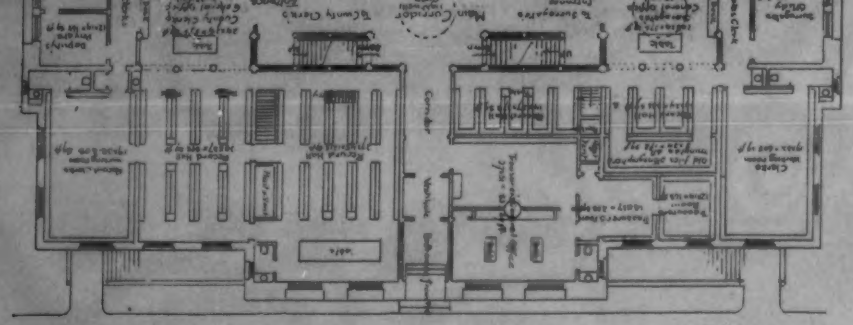


LONGITUDINAL SECTION THROUGH CORRIDOR.

COMPETITIVE DESIGN FOR ONEIDA COUNTY COURTHOUSE, UTICA, N. Y.

GREEN & WICKS, ARCHITECTS.

ПОЧТА



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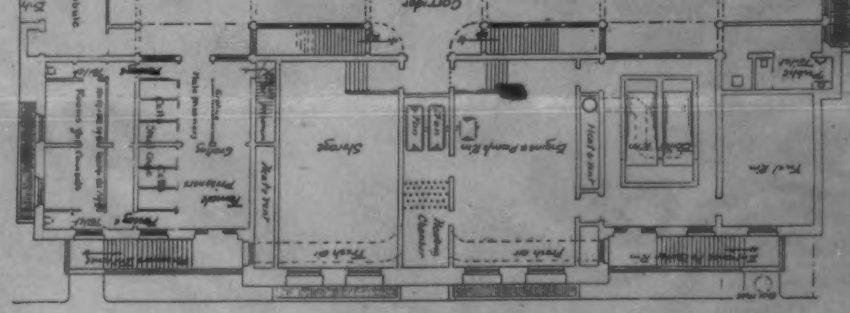

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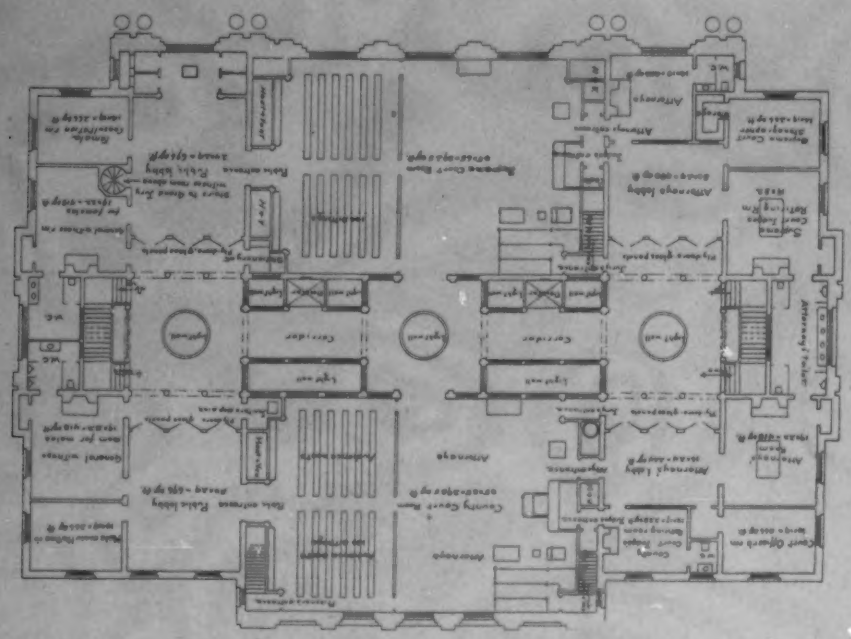

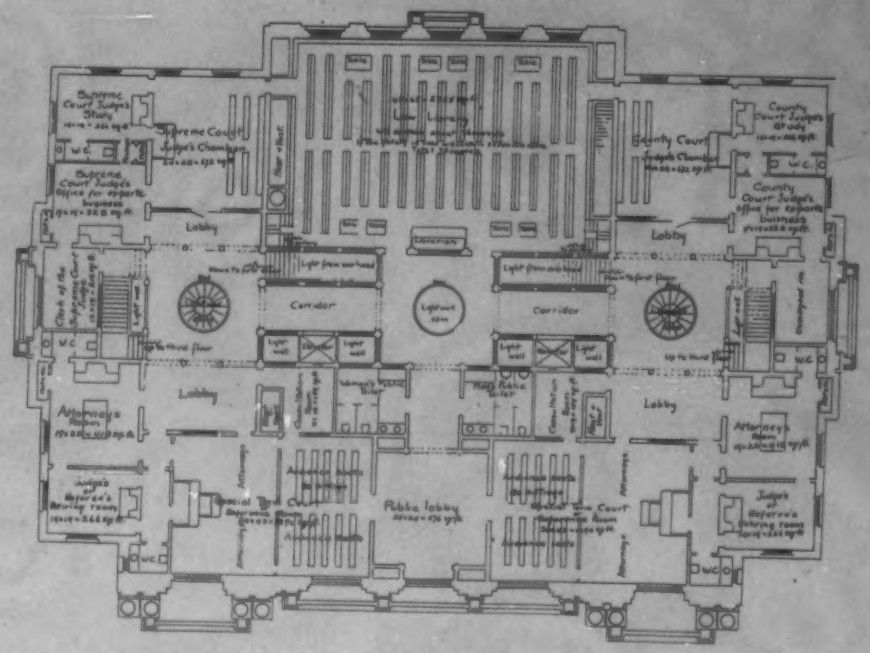

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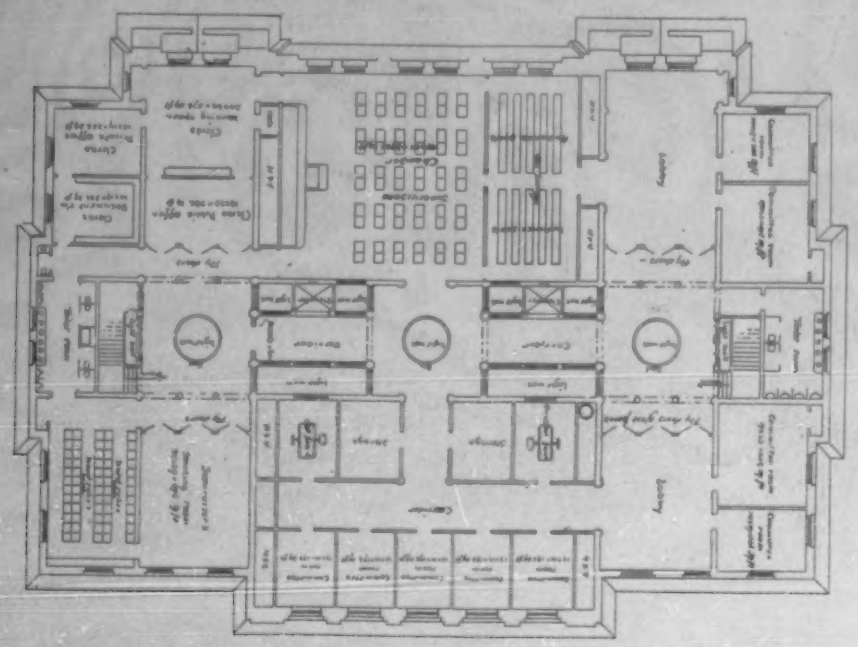

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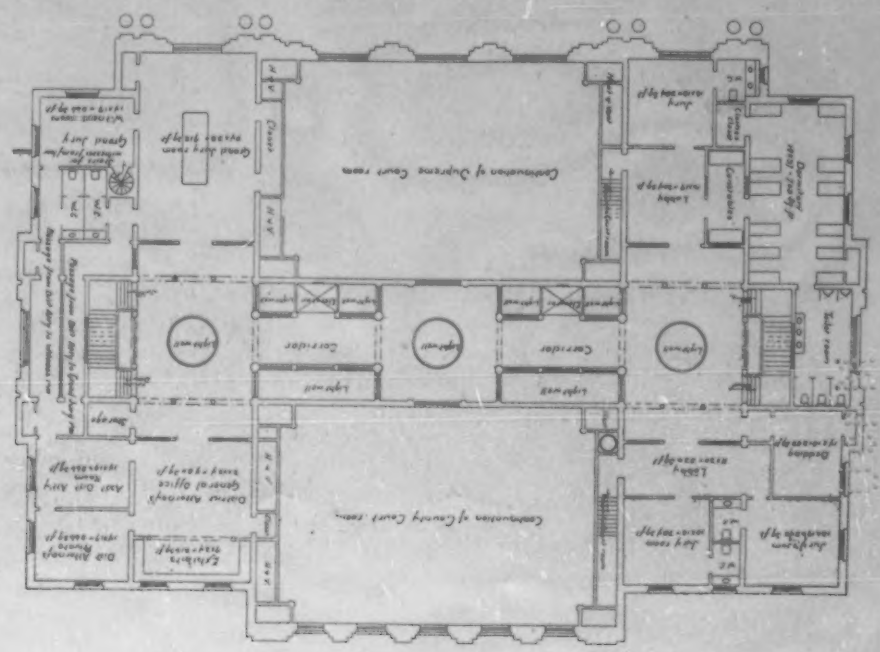

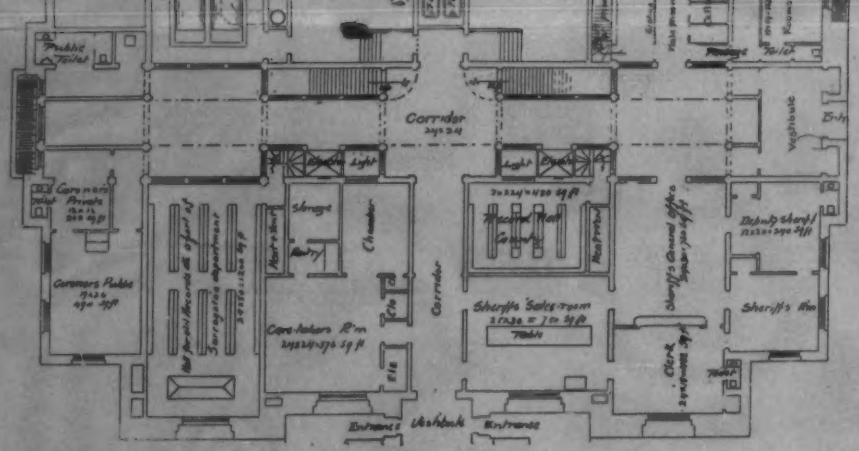

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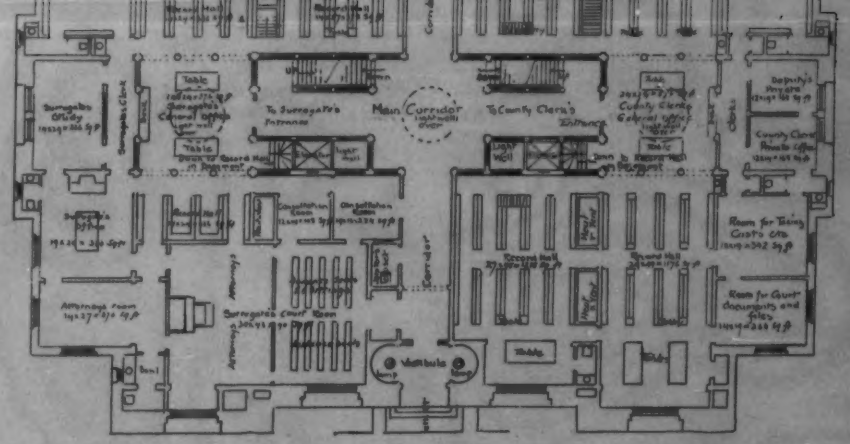

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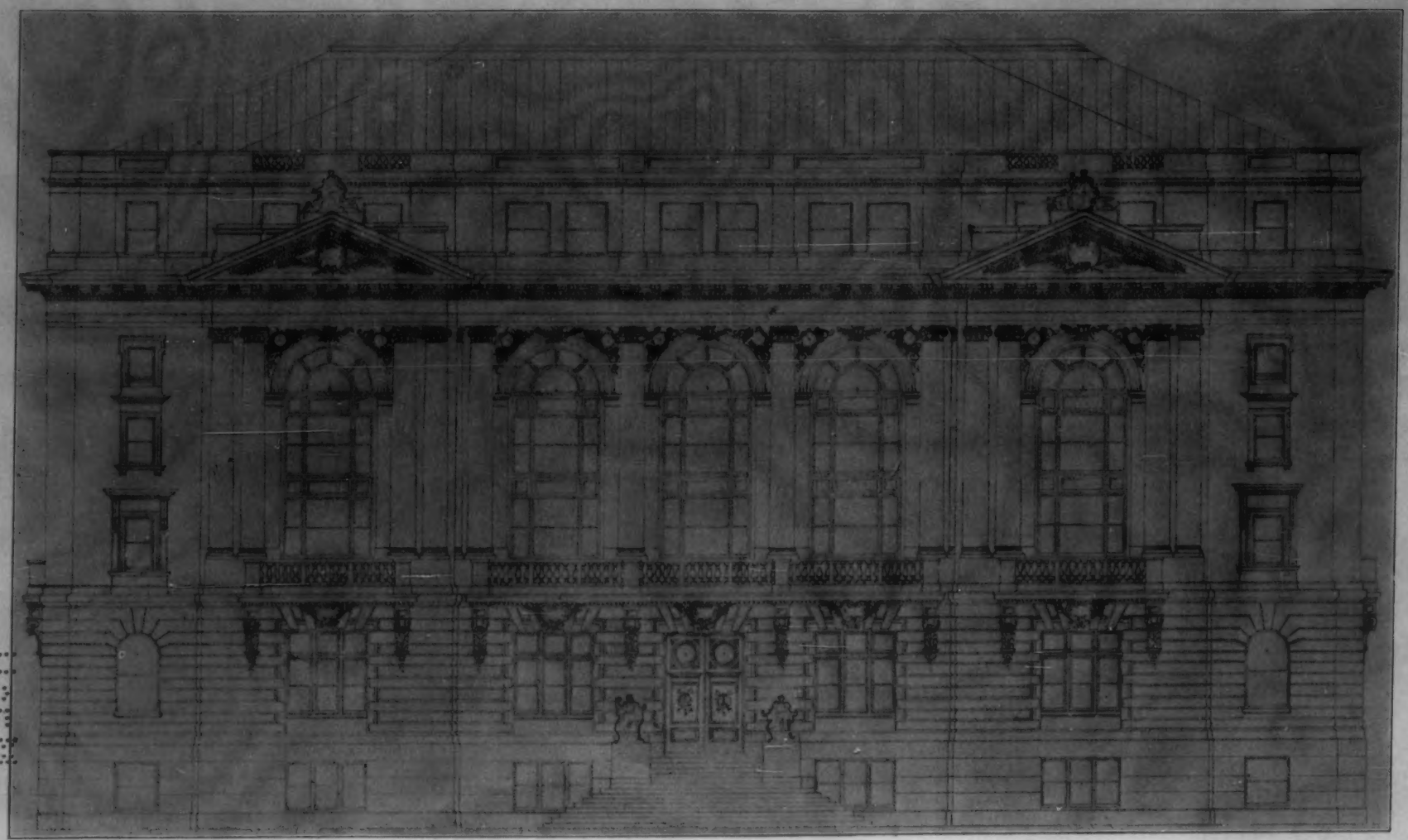
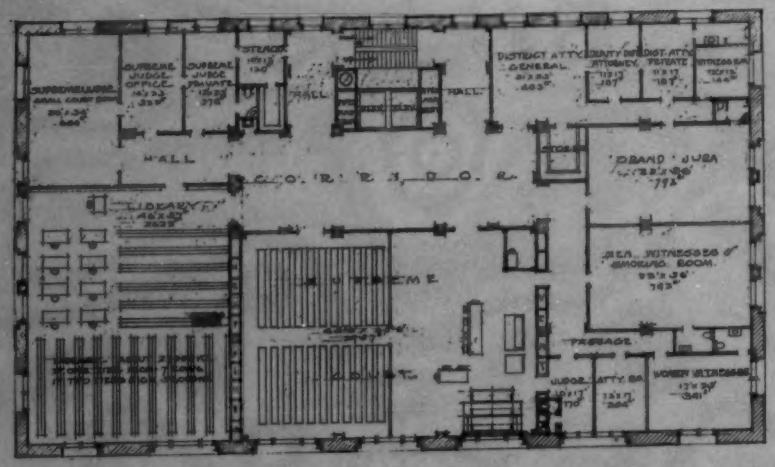


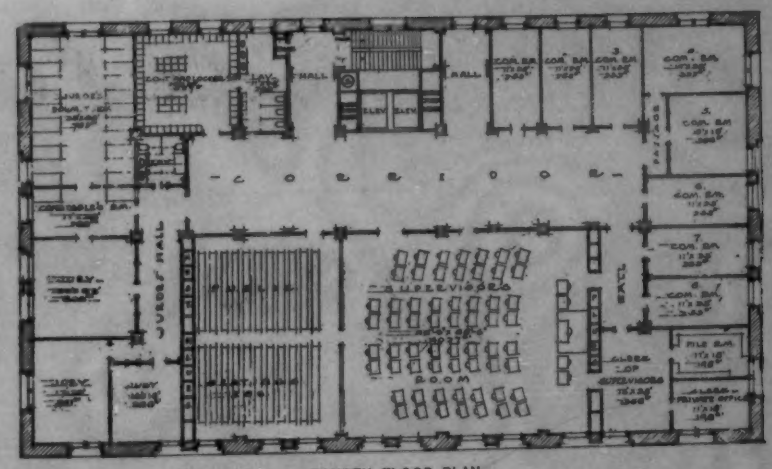
FRONT ELEVATION.

ACCEPTED DESIGN FOR ONEIDA COUNTY COURTHOUSE, UTICA, N. Y.

OLIN W. CUTTER, ARCHITECT.



THIRD FLOOR PLAN.



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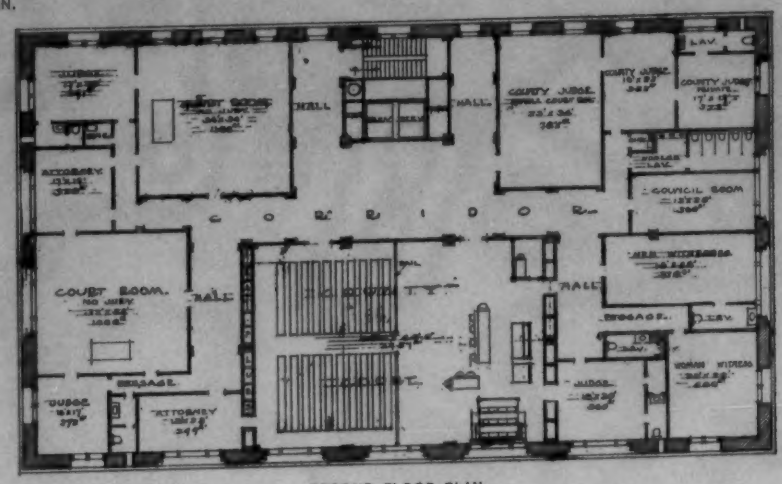

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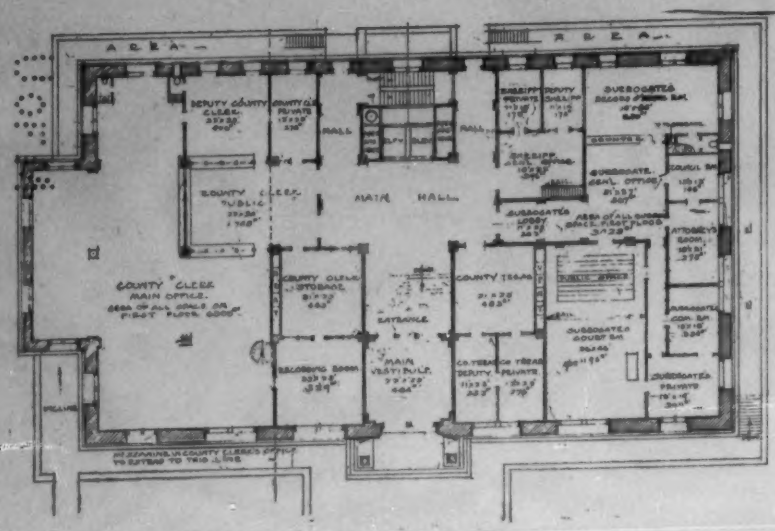

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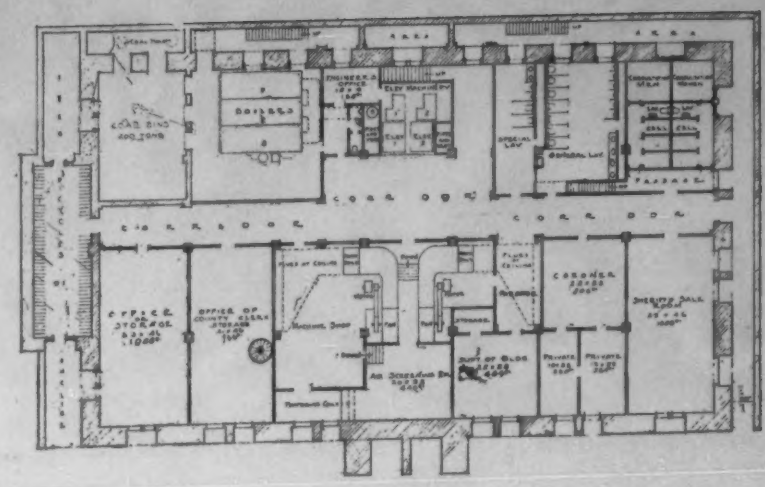
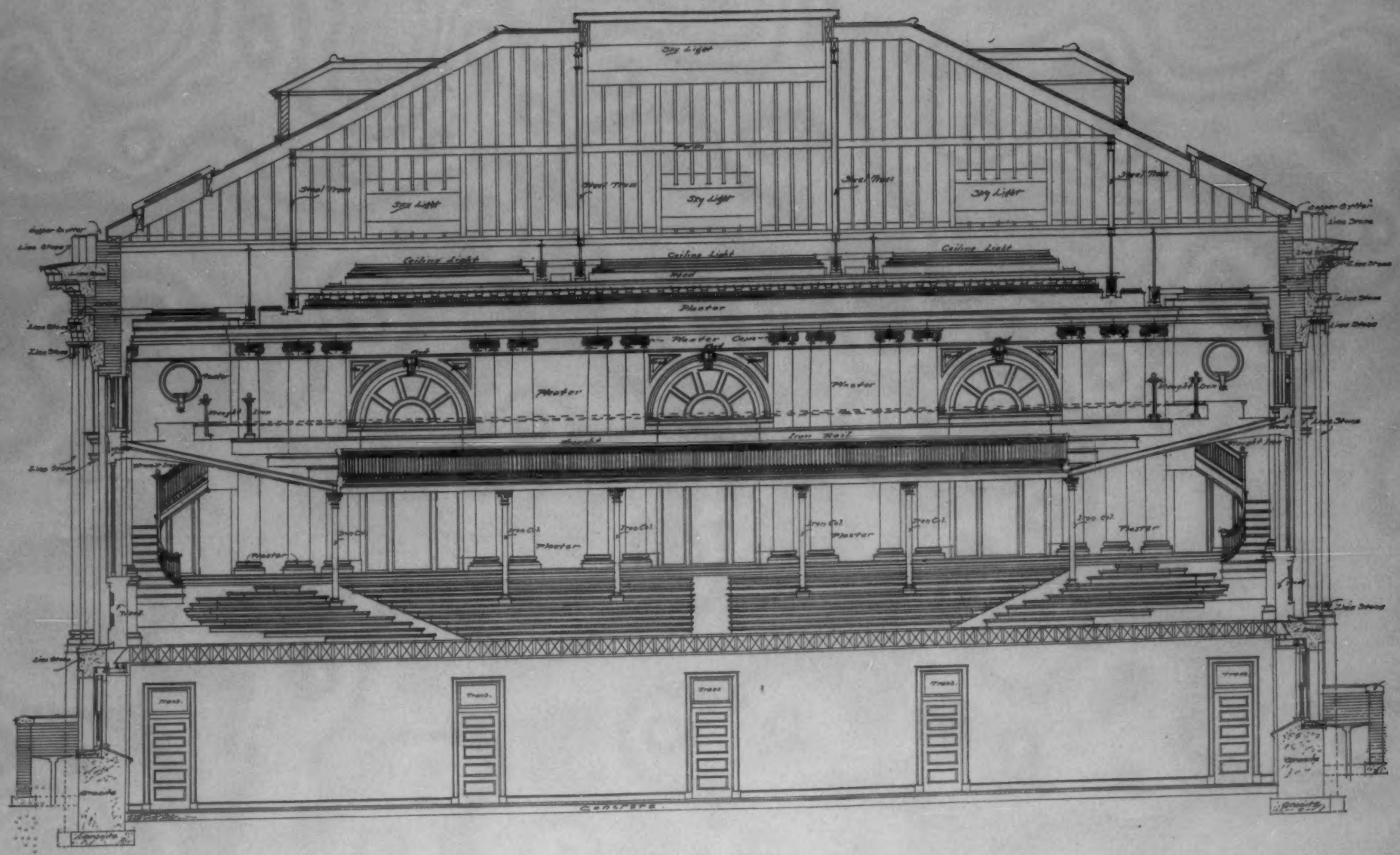


BASEMENT PLAN.

FLOOR PLANS FOR ONEIDA COUNTY COURTHOUSE, UTICA, N. Y.

GREEN & WICKS, ARCHITECTS.



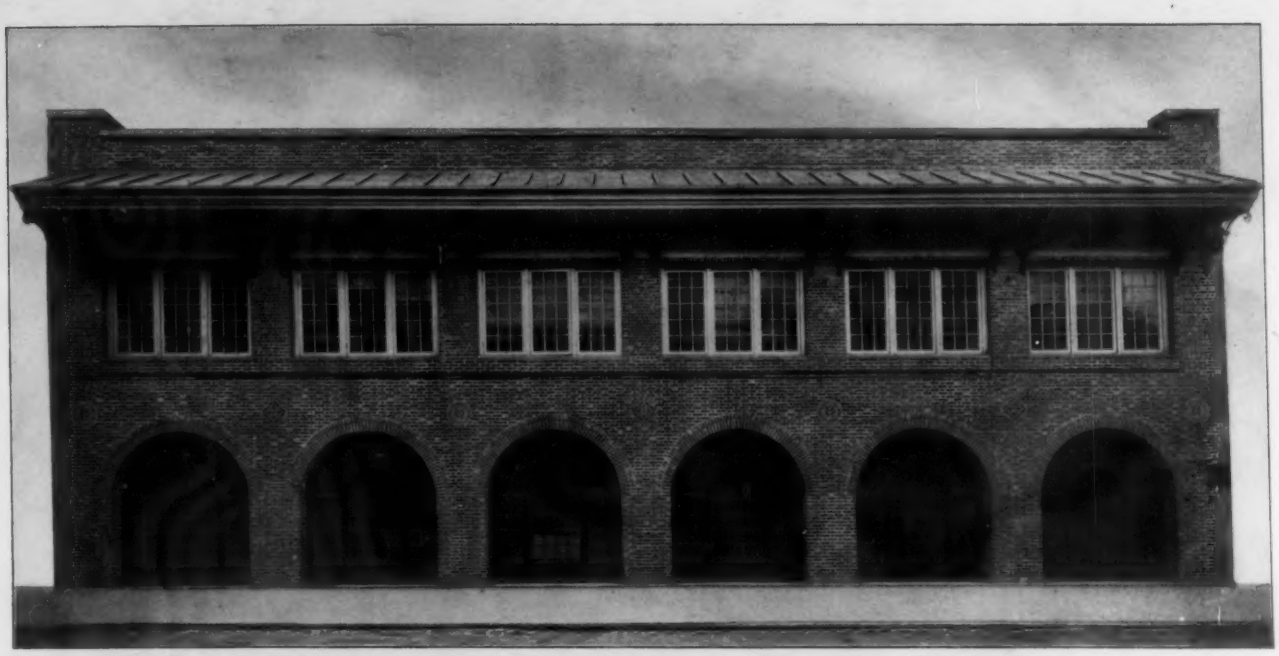
LONGITUDINAL SECTION.

LECTURE HALL, HARVARD UNIVERSITY, CAMBRIDGE, MASS.

GUY LOWELL, ARCHITECT.

NEW BUILDING FOR THE Y. M. C. A., AKRON, OHIO.

BUNTS & BLISS, ARCHITECTS.



ENTRANCE VESTIBULE.

OFFICE BUILDING, 457 AND 463 EAST 10TH STREET, NEW YORK CITY

WILKINSON & MAGONIGLE, ARCHITECTS.

U OF N

ПЬИ

HOUSE AT PROVIDENCE, R. I.

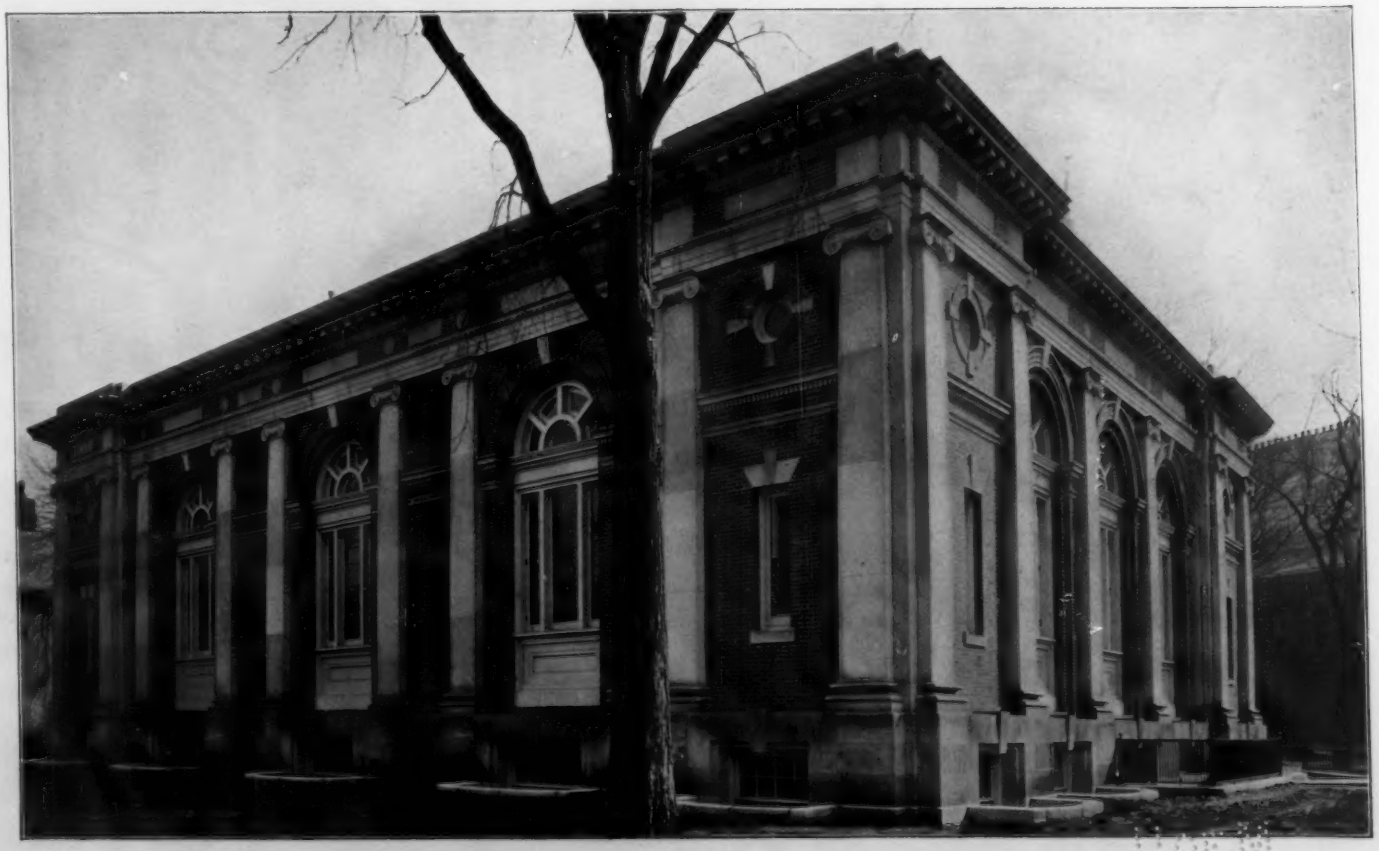
STONE, CARPENTER & WILLSON, ARCHITECTS.

ПОЛЯ

GENERAL VIEW SHOWING APSES, CHURCH OF SAINT-SERNIN, TOULOUSE, FRANCE.

ПОЛИ

FRONT.



REAR.

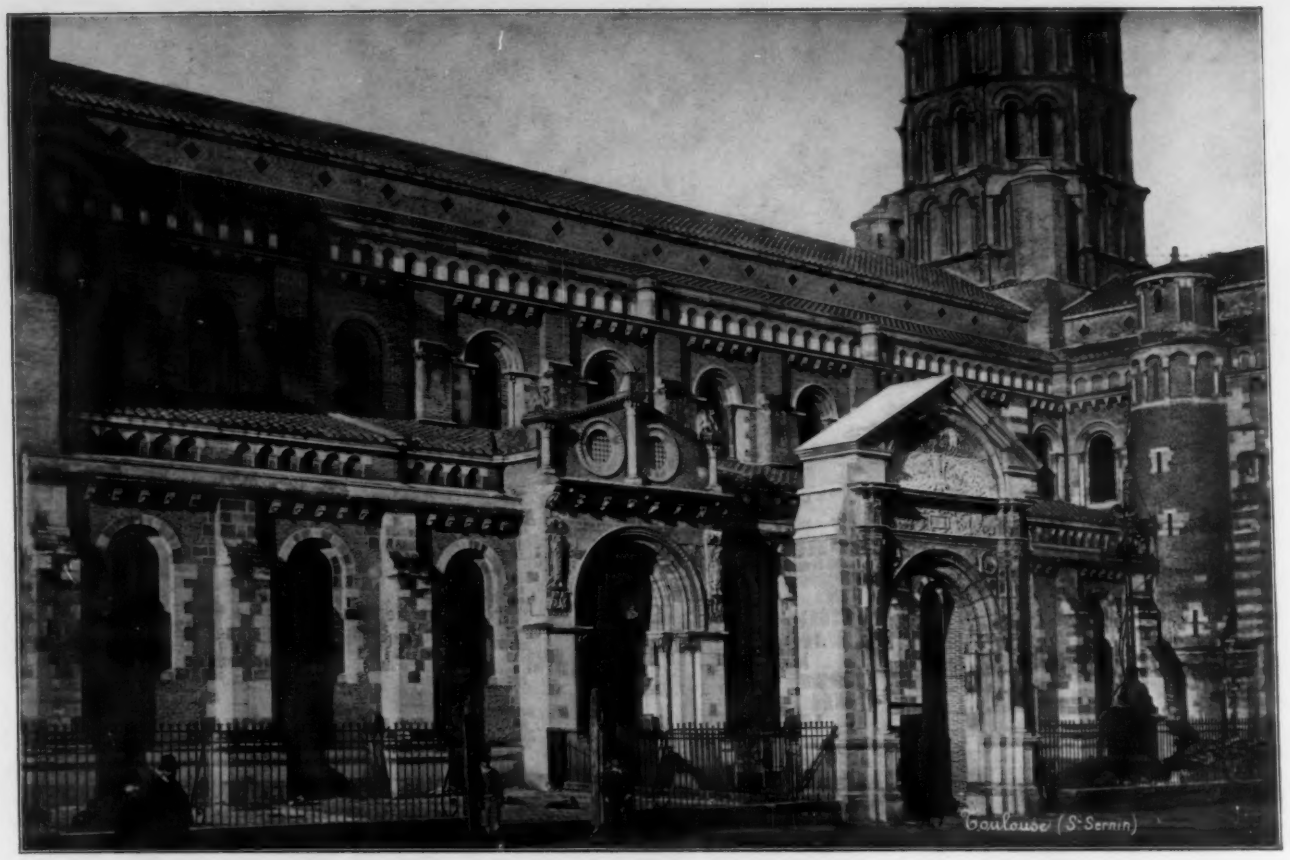
LECTURE HALL, HARVARD UNIVERSITY, CAMBRIDGE, MASS.

GUY LOWELL, ARCHITECT.

THE BRICKBUILDER
MARCH,
1903.

HOTEL SCHENLEY, PITTSBURG, PA.

RUTAN & RUSSELL, ARCHITECTS.



VIEW OF THE AISLES.

VIEW GIVING DETAILS OF APSES AND CHOIR.

CHURCH OF SAINT-SERNIN, TOULOUSE, FRANCE.